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PRIMARY FOREST PRODUCTS INDUSTRY & TIMBER USE MINNESOTA

1973

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FOREWORD

This publication contains the results of the first detailed study of forest industry and industrial roundwood production in Minnesota since 1960. Such detailed information is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, and forest industry development. Also, researchers need current forest industry and industrial roundwood information for planning projects.

Many of the comparisons in this report are for 1960 and 1973, although these years may not be typical of Minnesota timber products output and use. Available production and receipt data for specific products in intervening or previous years are included for comparative purposes.

Special thanks are given to the primary wood-using firms that supplied information for this study. Their cooperation is greatly appreciated.

Quantities shown may vary slightly from one table to another because of rounding differences but these differences are insignificant.

HIGHLIGHTS

- Active primary wood-using mills declined from 1,861 in 1953 to 1,345 in 1960 to 253 in 1973, but the average volume of logs and bolts processed per mill increased several fold.
- Industrial roundwood production rose 21 percent from 1960 to 1973.
- Ninety-four percent of the 141.2 million cubic feet of industrial roundwood cut in 1973 was pulpwood (71 percent) and saw logs (23 percent).
- Estimated timber removals (from growing stock on commercial forest land) for industrial roundwood in 1973 were 136.1 million cubic feet compared to 107.3 million cubic feet in 1960.
- Forty-seven percent of timber removals was aspen.
- Pulpwood production was 1.38 million cords in 1973 compared to 1.05 million cords in 1960.
- Saw log production was 178 million board feet, 6 percent higher than in 1960. Two thirds was hardwood, half of which was aspen.
- Average lumber production per sawmill was 750,000 board feet.
- Sawmills in Itasca, St. Louis, and Clearwater Counties cut 44 percent of Minnesota's lumber.
- Veneer log production in 1973 was half the average annual production between 1954 and 1963.
- Seventy-one percent of coarse residue generated by primary mills was used.
- Additional markets are needed for fine residue and bark. Seventy-five percent of the fine residue and 79 percent of the bark generated by primary mills was not used.

PRIMARY FOREST PRODUCTS INDUSTRY AND TIMBER USE, MINNESOTA, 1973

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PRIMARY FOREST INDUSTRY — INDUSTRIAL ROUNDWOOD

Minnesota's primary[1] forest industry dropped to 253 active mills in 1973 from 1,345 in 1960 and 1,861 in 1953. Many small mills closed due to competition from larger, more efficient, and better-financed mills. Major mills are concentrated in the eastern half of Minnesota and particularly in the Northern Pine and Northern Aspen-Birch Units (fig. 1).

Industrial roundwood receipts in 1973 at all mills (except treating plants) were 121.3 million cubic feet, one-third higher than in 1960. More than half (53 percent) was aspen and about one-third (32 percent) was softwoods. Hardwood receipts in 1973 were more than 50 percent greater than in 1960, but softwood receipts fell about 5 percent. Minnesota mills (excluding treating plants) imported only 1 percent of their roundwood requirements in 1973.

Industrial roundwood production in 1973 was 141.2 million cubic feet, up from 116.9 million cubic feet in 1960. From 1960 to 1973 softwood production declined an average 1.7 percent annually while hardwood production rose an average 4.3 percent annually. Pulpwood and saw logs comprised 94 percent of the industrial roundwood produced in 1973.

Large quantities of the roundwood required by industry in 1973 was harvested from public land — 70 percent of the softwood volume and 47 percent of the hardwood. Production by owner class was:

Owner class	Softwood	Hardwood
	(In million cubic feet)	
Federal:		
National Forest	11.1	9.2
Other	4.3	2.9
State	15.4	11.9
County	6.6	17.0
Private:		
Forest industry	7.7	9.7
Other	8.0	37.4
All owners	53.1	88.1

The Northern Aspen-Birch and Northern Pine Units furnished all but 1 percent of the industrial roundwood harvested from public land in 1973.

TIMBER REMOVALS FOR INDUSTRIAL ROUNDWOOD

Estimated timber removals (from growing stock on commercial forest land) for industrial

[1] *Mills receiving roundwood or chips from roundwood are primary mills.*

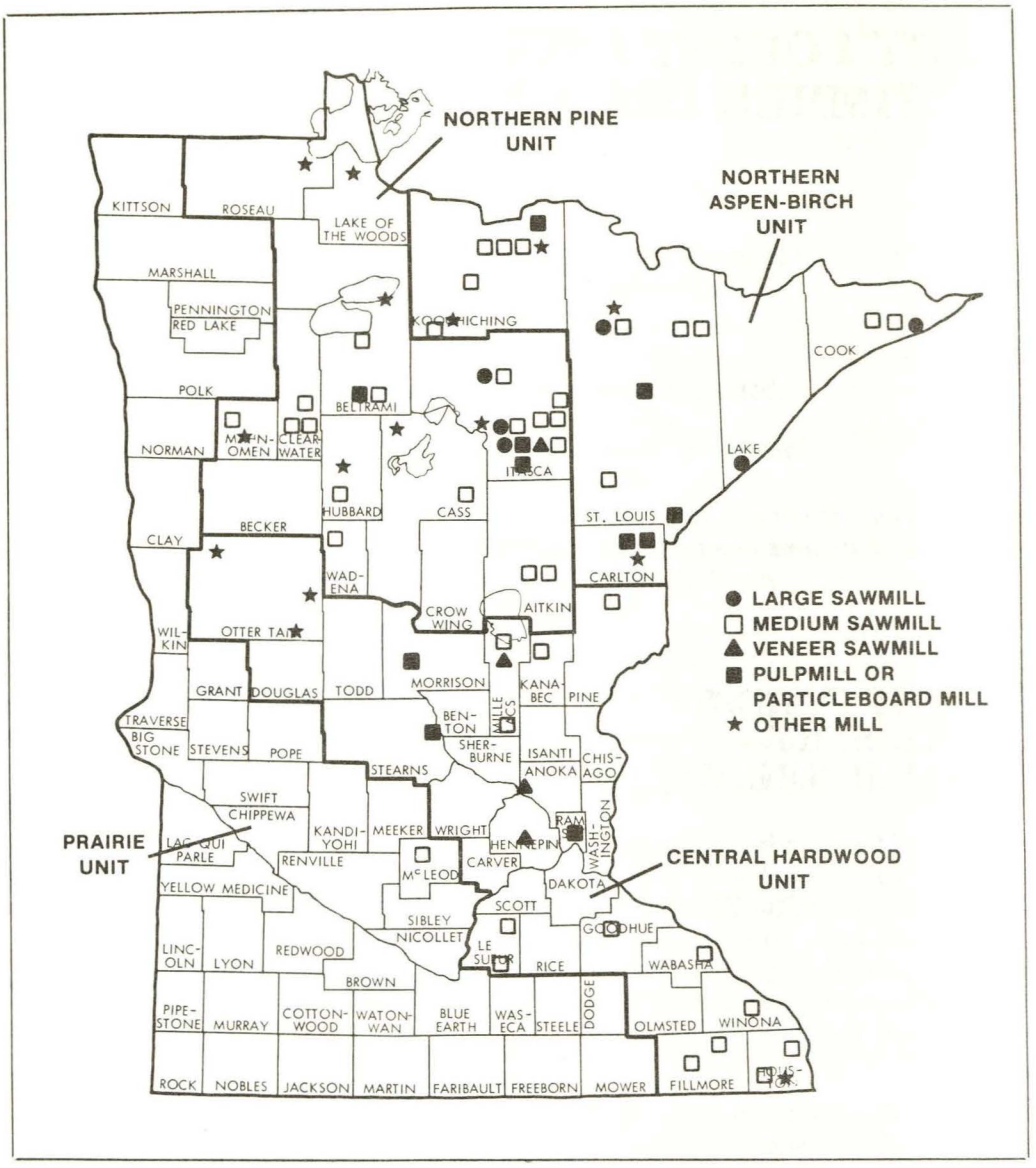

Figure 1.—*Primary wood-using plants and Forest Survey Units in Minnesota, 1973. Sawmills are classed by volume of lumber produced in 1973: large = 5 million board feet or more; medium = 1 to 4.999 million board feet (smaller sawmills not shown). The Forest Survey Units are the geographic areas used by the Resources Evaluation Project to report periodic inventories and use of the Nation's forest resources.*

roundwood in 1973 were 136.1 million cubic feet, 27 percent more than in 1960. Softwood and hardwood removals in 1960 and 1973 were:

	Removals		Percent change
	1960	1973	
	(in million cubic feet)		
Softwood	60.2	51.5	−14
Hardwood	47.1	84.6	+80

Before using these data, the relation between industrial roundwood production and timber removals should be reviewed (table 1). Eight percent of the industrial roundwood came from nongrowing stock and was not part of the timber removals. Also, timber removals for fuelwood and noncommercial posts or other removals are not included (see footnote 3, table 1). However, logging residue from growing stock generated during production of industrial roundwood is added to industrial roundwood harvested from growing stock to determine timber removals for industrial roundwood.

In 1973, removals in principal species[2] were:

Species	Removals
	(Million cubic feet)
Jack pine	17.7
Spruce	17.4
Balsam fir	6.2
Red pine	3.7
White pine	3.1
Aspen	64.5
Paper birch	4.9
Red oak	3.3

Aspen clearly dominated 1973 timber removals; it comprised nearly half (47 percent) of all timber removals and three-fourths of hardwood removals.

Five counties each had more than 8 million cubic feet of removals — St. Louis, Koochiching, Itasca, Beltrami, and Lake. Together they accounted for 65 percent of timber removals for industrial roundwood in 1973.

[2] *Common and scientific names of all species mentioned in this report are listed in the Appendix.*

Table 1.— *Industrial roundwood production, timber removals, and their relation, Minnesota, 1973*
(In million cubic feet)

Item	From growing stock on commercial forest land	From nongrowing stock[1]	Total
Industrial roundwood:			
Pulpwood	90.8	9.4	100.2
Saw logs	31.1	0.8	31.9
Other[2]	8.4	0.7	9.1
Subtotal	130.3	10.9	141.2
Logging residue	5.8	(4)	(4)
Timber removals[3]	136.1		

[1] Includes cull trees, dead trees, saplings, and trees on nonforest land.
[2] Includes veneer logs, poles, commercial posts, piling, particleboard, bolts, shaving bolts, lath bolts, charcoal bolts, and chips from roundwood.
[3] For industrial roundwood only. Does not include timber removals for fuelwood and noncommercial posts or other removals. Other removals are growing stock trees removed but not used for products or trees left standing but "removed" from the commercial forest land classification by land use change.
[4] Not available.

PULPWOOD

Pulpwood production was 1.4 million cords in 1973, higher than in any previous year. Ninety-two out of 100 cords were roundwood; the remainder was wood residue (used at pulpmills) from sawmills, veneer mills, and other mills. Until 1966, the residue component of annual production never exceeded 1 percent (fig. 2).

During the last quarter century, hardwood roundwood has become a more important component of pulpwood output. Aspen has always been the dominant hardwood cut for pulp; nine-tenths was aspen in 1973. Since 1968, however, the increase in the average annual rate of production from other hardwoods has been greater than for aspen (fig. 3).

From 1964 to 1973, an average of 213,000 cords of pine were cut per year, and pine was the major softwood pulping species. Spruce was close behind with an average of 195,000 cords per year. Pine pulpwood cut in 1973 consisted of jack pine (90 percent), red pine (6 percent), and white pine (4 percent). No noticeable harvesting trend for pine

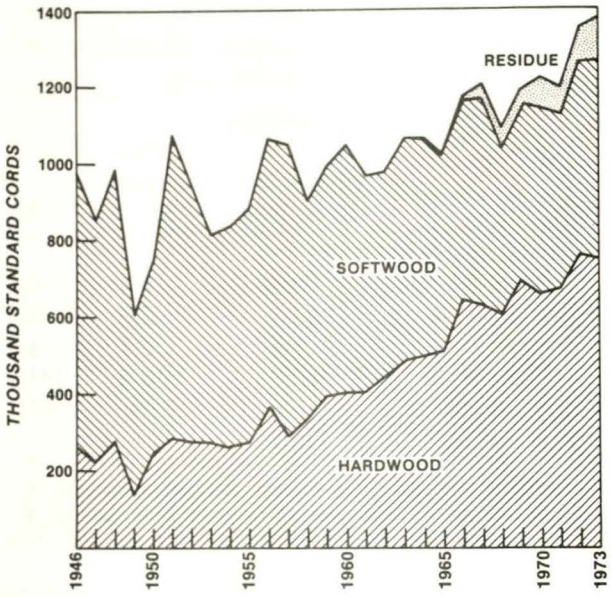

Figure 2.— *Minnesota pulpwood production trends, 1946-1973.*

and spruce has been evident in recent years. Some mills are highly dependent on these species for manufacturing paper products. Generally, pulpwood harvesting from other softwoods has been declining since 1957.

Most (84 percent in 1973) Minnesota pulpwood is used in the State. Wisconsin is the major out-of-State consumer. Pine, spruce, and aspen are the principal export species.

Nine Minnesota mills received 1.2 million cords of pulpwood in 1973, near the record high set in 1972 (fig. 4). All but 13 percent was roundwood and only 6 percent was imported (primarily as residue chips) from other States and Canada.

Pulpwood receipts rose an average 2.7 percent yearly since 1946. Several sharp gains and losses during this period resulted from mills adjusting their wood inventories and meeting changing demands for their products. Demand for aspen has been strong in recent years; demand for softwoods has been stable. Birch consumption since 1970 has equalled consumption of all other hardwoods except aspen. Use of residue for pulpwood has grown rapidly since 1965.

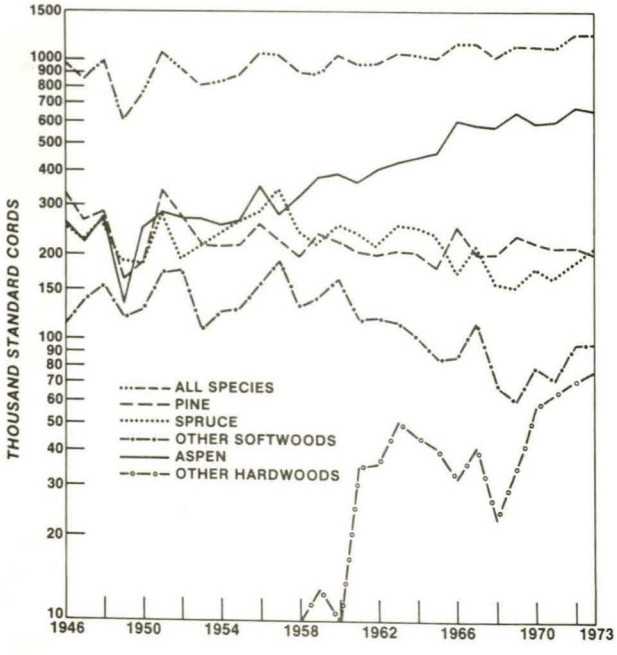

Figure 3.— *Minnesota round pulpwood production by species groups, 1946-1973.*

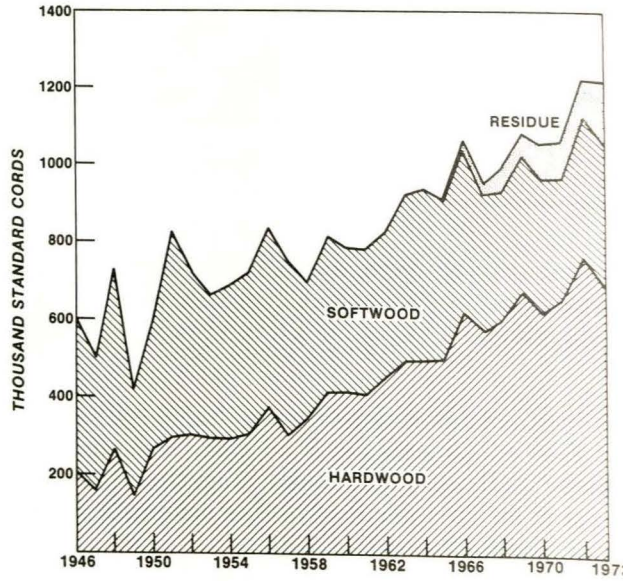

Figure 4.— *Pulpwood receipts in Minnesota, 1946-1973.*

SAW LOGS

Minnesota loggers harvested 178 million board feet of saw logs in 1973, a 6 percent rise from 168 million board feet cut in 1960. Saw log demand was heavy for railroad ties, pallets, furniture, crating, and construction.

Sixty-nine percent of the output was hardwoods; half of the hardwood was aspen. Other important species cut were red oak, white pine, jack pine, red pine, and elm.

Minnesota mills sawed all but 7 million board feet of these logs. Wisconsin mills procured 96 percent of the export logs; principal species purchased were red oak, balsam fir, and basswood.

Aspen output climbed 23 million board feet from 1960 as it found widespread acceptance for furniture parts and pallets and greater acceptance in construction. Overall, hardwood saw log production rose 30 million board feet. In contrast, softwood saw log output fell 21 million board feet compared to 1960; major losses were in white pine (11 million board feet) and jack pine (10 million board feet). Meanwhile, demand for cedar, an underutilized species, more than doubled.

Northern Pine Unit forests furnished half (51 percent) of the saw logs including 72 percent of the aspen, 80 percent of the jack pine, and 54 percent of the red pine.

Loggers in the Northern Aspen-Birch Unit cut one-fourth of the saw log volume including a majority of the white pine, balsam fir, spruce, and cedar. Four southeastern counties, where railroad tie markets are strong, supplied 59 percent of the red oak volume.

Top-producing counties were Itasca, St. Louis, Clearwater, and Koochiching. Half (48 percent) of the aspen saw log output came from Itasca County. White and red pine demand was strong in St. Louis County.

More than 200 Minnesota sawmills procured 172 million board feet of logs in 1973. Imports, totaling less than 2 million board feet, came from Iowa and Wisconsin; red oak was the chief import.

Sawmills in three counties (Itasca, St. Louis, and Clearwater) cut 44 percent of Minnesota's lumber (fig. 5). These counties contain four of the six large sawmills (each sawing 5 million board feet or more of lumber annually). Average lumber production per sawmill was 750,000 board feet, six times the average in 1960. The rapid rise in output per mill is due to many small mills closing, larger capacity mills being built, and some mills expanding their production.

OTHER PRODUCTS

Other industrial roundwood products (6 percent of all industrial roundwood) cut in Minnesota in 1973 were veneer logs, particleboard bolts, poles, commercial posts, piling, lath bolts, charcoal wood, cooperage bolts, shaving bolts, match bolts, and specialty bolts for dowels and nursery flats. Most of these products are cut in the Northern Aspen-Birch and Northern Pine Units.

Since 1970 Minnesota loggers produced annually about half the veneer log volume that was cut each year between 1954 and 1963. Four Minnesota veneer mills closed since 1960. Of the 5.1 million board feet of veneer logs harvested in 1973, red oak and cottonwood were primary components.

Particleboard bolts and shaving bolts used for poultry litter and livestock bedding are new roundwood products since 1960. These products together with larger commercial post production led to a 42 percent rise in output in 1973 (compared to 1960) in the "other product" category.

PRIMARY PLANT RESIDUE

During 1973, Minnesota primary wood-using plants (except pulpmills) generated 232,000 green tons of coarse residue, 136,000 green tons of fine residue, and 109,000 green tons of bark. The percent of each residue class not utilized (piled, land fill, burned as waste, etc.) was:

Class of residue	Softwood	Hardwood
	(Percent)	
coarse	31	28
fine	81	73
bark	82	78

Markets for coarse residue were fair but 22,000 green tons of softwood and 45,000 green tons of hardwood were not used. Markets were poor for fine residue and bark. The Northern Aspen-Birch

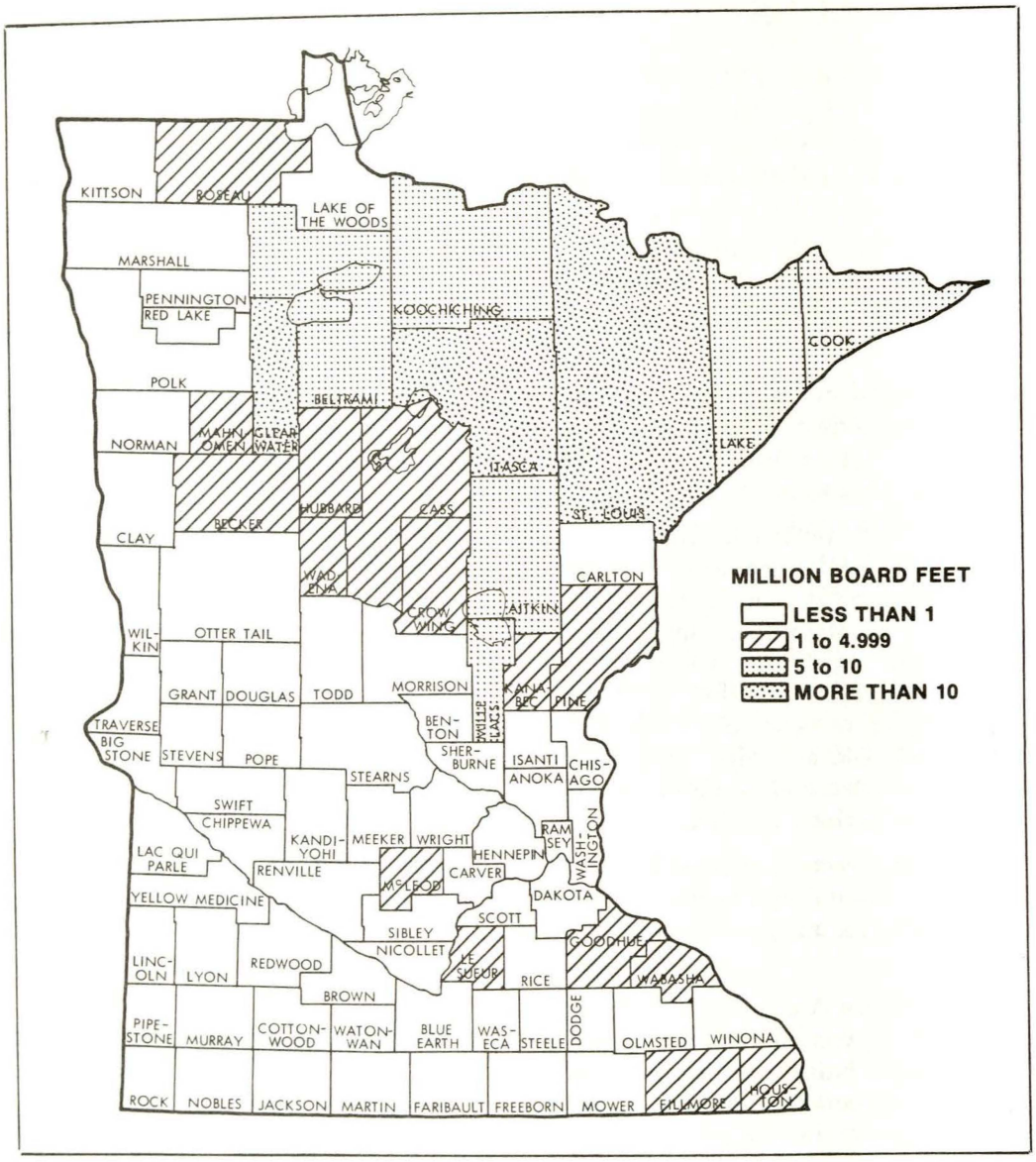

Figure 5.— *Lumber production in Minnesota counties, 1973.*

Unit had the largest volume of unused residue in each class. St. Louis, Clearwater, and Itasca Counties each had more than 10,000 green tons of unmarketable coarse and fine residue.

Primary markets for residue were as follows: pulpwood — coarse residue; domestic fuelwood — bark; and mulch, bedding, litter, etc. — fine residue. A large quantity of bark and sawdust was not used, but it may become an important supplemental fuel for companies with inadequate supplies of other fuel.

Estimates of residue in 1973 by type of disposal for each county are found in the Appendix. Individuals or firms desiring wood or bark residue can select procurement areas where high concentrations of residue are available.

APPENDIX

STUDY METHODS

Data for this publication came from a complete canvass of primary wood-using firms that process Minnesota logs and bolts and all public agencies that administer Minnesota forest land. The study was a cooperative effort between the North Central Forest Experiment Station (NCFES) and the Minnesota Department of Natural Resources (DNR). Special thanks are given to the NCFES field crews of the Resources Evaluation Project and the Regional Utilization and Marketing Specialists of the DNR for contacting the nonrespondents to a mailed questionnaire. DNR foresters provided estimates for a few Minnesota mills which did not furnish data. The DNR canvassed public agencies (other than Federal, which was done by the NCFES) to determine the 1973 timber products harvest on land they administer.

The NCFES canvassed out-of-State mills that use Minnesota roundwood and followed-up on nonrespondents. The Station edited and compiled the data.

The authors gratefully acknowledge the fine cooperation of the primary wood-using firms that made this study possible.

Logging utilization factors developed from a logging study by the Station in 1975-1976 were used to estimate timber and sawtimber removals for industrial roundwood in 1973.

DEFINITION OF TERMS

Timber removals for industrial roundwood — The volume of sound bole wood (between a 1-foot stump and a minimum top diameter of 4.0 inches outside bark or to a point where the central stem breaks into limbs) in poletimber and sawtimber growing-stock trees on commercial forest land removed annually for industrial roundwood products (including logging residues).

Sawtimber removals for industrial roundwood — The volume of sound bole wood (between a 1-foot stump and the point on the bole above which a saw log cannot be produced) in sawtimber growing-stock trees on commercial forest land removed annually for industrial roundwood products (including logging residues). The minimum saw log top is 7.0 inches diameter outside bark for softwoods and 9.0 inches diameter outside bark for hardwoods.

Commercial forest land — Forest land that is producing or capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation. Generally, this includes areas suitable for growing crops of industrial wood in excess of 20 cubic feet per acre annually.

Industrial roundwood products — Saw logs, pulpwood, veneer logs, poles, commercial posts, piling, particleboard bolts, shaving bolts, lath bolts, charcoal bolts, and chips from roundwood.

Industrial roundwood production — The quantity of industrial roundwood harvested in a geographic area.

Industrial roundwood receipts — The quantity of industrial roundwood received in a geographic area regardless of the geographic source.

Consumption — The quantity of a commodity, such as pulpwood, utilized.

Growing-stock trees — All live poletimber and sawtimber trees of commercial species except rough and rotten trees. Poletimber trees are 5.0 to 8.9 inches d.b.h. for softwoods and 5.0 to 10.9 inches d.b.h. for hardwoods. Softwood sawtimber trees are 9.0 inches d.b.h. or larger; hardwood sawtimber trees are 11.0 inches d.b.h. or larger.

Primary wood-using plant residue — Wood materials (coarse and fine) and bark not utilized for principal products at manufacturing plants using roundwood. These residues include wood products (byproducts) obtained incidental to production of principal products and wood materials not utilized for some product.

Coarse plant residue — Wood residue suitable for chipping such as slabs, edging, and veneer cores.

Fine plant residue — Wood residue not suitable for chipping such as sawdust and veneer clippings.

COMMON AND SCIENTIFIC NAMES OF TREE SPECIES MENTIONED

SOFTWOOD SPECIES	
Pine:	
Eastern white pine	*Pinus strobus*
Red pine	*Pinus resinosa*
Jack pine	*Pinus banksiana*
Spruce:	
White spruce	*Picea glauca*
Black spruce	*Picea mariana*
Balsam fir	*Abies balsamea*
Tamarack	*Larix laricina*
Northern white-cedar	*Thuja occidentalis*
HARDWOOD SPECIES	
White oak:	
White oak	*Quercus alba*
Bur oak	*Quercus macrocarpa*
Swamp white oak	*Quercus bicolor*
Red oak:	
Northern red oak	*Quercus rubra*
Black oak	*Quercus velutina*
Northern pin oak	*Quercus ellipsoidalis*
Hickory:	
Bitternut hickory	*Carya cordiformis*
Shagbark hickory	*Carya ovata*
Birch:	
Yellow birch	*Betula alleghaniensis*
Paper birch	*Betula papyrifera*
Hard maple:	
Black maple	*Acer nigrum*
Sugar maple	*Acer saccharum*
Soft maple:	
Red maple	*Acer rubrum*
Silver maple	*Acer saccharinum*
Ash:	
Black ash	*Fraxinus nigra*
White ash	*Fraxinus americana*
Green ash	*Fraxinus pennsylvanica*
Balsam poplar	*Populus balsamifera*
Aspen:	
Bigtooth aspen	*Populus grandidentata*
Quaking aspen	*Populus tremuloides*
Eastern cottonwood	*Populus deltoides*
American basswood	*Tilia americana*
Black walnut	*Juglans nigra*
Elm:	
American elm	*Ulmus americana*
Rock elm	*Ulmus thomasii*
Slippery elm	*Ulmus rubra*

Table 2. *Industrial roundwood production in Minnesota, 1953, 1960, and 1973*
(In million cubic feet)

Product	All species			Softwoods			Hardwoods		
	1953	1960	1973	1953	1960	1973	1953	1960	1973
Pulpwood	72.5	83.2	100.2	51.7	51.5	40.9	20.8	31.7	59.3
Saw logs	31.2	27.3	31.9	16.4	12.3	10.1	14.8	15.0	21.8
Veneer logs	1.1	1.4	0.8	(1)	—	—	1.1	1.4	0.8
Poles and piling	1.3	1.4	1.0	1.3	1.4	1.0	—	—	—
Mine timbers	1.9	0.6	—	1.7	0.5	—	0.2	0.1	—
Posts[2]	—	0.4	1.0	—	0.4	1.0	—	—	—
Miscellaneous[3]	2.6	2.6	6.3	0.4	0.2	0.2	2.2	2.4	6.1
Total	110.6	116.9	141.2	71.5	66.3	53.2	39.1	50.6	88.0

[1] Less than 50,000 cubic feet.
[2] Includes only posts processed at fence and treating plants.
[3] Includes match and clothespin stock, particleboard bolts, hewn ties, shaving bolts, cabin logs, cooperage bolts, etc.

Table 3.—*Volume of industrial roundwood production by type of product in Minnesota, 1973*

Product	Standard units	All species	Soft-woods	Hard-woods	All species	Soft-woods	Hard-woods
		Thousand standard units			Thousand cubic feet		
Pulpwood	Standard cords	1,269	518	751	100,201	40,901	59,300
Saw logs	Board feet[1]	177,521	55,233	122,288	31,905	10,075	21,830
Veneer logs	Board feet[1]	5,076	—	2,076	814	—	814
Piling	Linear feet	239	239	—	155	155	—
Poles	Pieces	143	143	—	856	856	—
Posts[2]	Pieces	1,227	1,227	—	980	980	—
Miscellaneous[3]	Cubic feet	6,309	196	6,113	6,309	196	6,113
Total	Cubic feet	141,220	53,163	88,057	141,220	53,163	88,057

[1] International 1/4-inch rule.
[2] Includes only posts processed at fence and treating plants.
[3] Includes match stock, particleboard bolts, lath bolts, shaving bolts, and cooperage bolts.

Table 4.—*Industrial roundwood products output by landowner class and unit, Minnesota, 1973*
(In thousand cubic feet)

Owner class	Northern Aspen-Birch		Northern Pine		Central Hardwood		Prairie		All Units	
	Soft-woods	Hard-woods	Soft-woods	Hard-woods	Soft-woods	Hard-woods	Soft-woods	Hard-woods	Soft-woods	Hard-woods
Federal:[1]										
National Forest	8,690	4,347	2,392	4,831	—	—	—	—	11,082	9,178
Other	1,286	537	2,923	2,209	81	176	—	—	4,290	2,922
State	8,299	6,095	6,974	5,238	146	535	6	20	15,425	11,888
County	2,296	7,554	4,334	9,395	—	—	—	—	6,630	16,949
Private:										
Forest industry[2]	5,945	8,031	1,800	1,648	—	4	—	—	7,745	9,683
Other	5,591	14,870	2,004	11,022	136	10,451	260	1,094	7,991	37,437
All owners	32,107	41,434	20,427	34,343	363	11,166	266	1,114	53,163	88,057

[1] Does not include commercial posts.
[2] Primary wood-using firms owning forest land, except sawmills cutting less than 100,000 board feet annually.

Table 5.—*Number of active primary wood-using mills in Minnesota, 1953, 1960 and 1973*

Kind of mill	All units			Northern Aspen-Birch	Northern Pine	Central Hard-wood	Prairie
	1953	1960	1973	1973	1973	1973	1973
Pulpmills	9	9	9	4	2	3	—
Sawmills							
Large[1]	3	1	6	3	3	—	—
Medium[2]	93	26	42	11	17	13	1
Small[3]	1,719	1,255	175	39	99	28	9
Veneer mills	9	7	3	—	—	2	1
Misc. plants[4]	28	47	18	5	8	5	—
Total	1,861	1,345	253	62	129	51	11

[1] Annual lumber production of 5 million board feet or more.

[2] Annual lumber production of from 1 million to 4.999 million board feet or more in 1960 and 1973; annual production of 0.500 million to 4.999 million board feet in 1953.

[3] Annual lumber production less than 1 million board feet in 1960 and 1973; annual production less than 0.500 million board feet in 1953.

[4] Includes particleboard plants, cooperage mills, lath mills, shaving mills, a match plant, and a charcoal plant.

Table 6.—*Major industrial roundwood receipts by type of mill in Minnesota, 1960 and 1973*
(In million cubic feet)

Type of mill	All species		Softwoods		Aspen		Other hardwoods	
	1960	1973	1960	1973	1960	1973	1960	1973
Pulpmills	61.9	83.8	29.1	28.8	31.9	48.8	0.9	6.2
Sawmills	26.4	30.9	11.5	9.7	5.5	11.2	9.4	10.0
Other mills[1]	2.7	6.6	0.1	0.3	1.5	4.7	1.1	1.6
Total	91.0	121.3	40.7	38.8	38.9	64.7	11.4	17.8

[1] Does not include treating plants.

Table 7.—*Timber removals for industrial roundwood by species, unit, and county in Minnesota, 1973*

(In million cubic feet)

UNIT AND COUNTY	BALSAM FIR	CEDAR	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMARACK	ASH	ASPEN	BALSAM POPLAR	BASSWOOD	PAPER BIRCH	YELLOW BIRCH	COTTONWOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	WALNUT	OTHER HARDWOODS	ALL SPECIES
NORTHERN ASPEN-BIRCH																							
CARLTON	37	0	154	12	4	44	2	41	2808	0	17	371	0	0	20	0	4	2	37	1	0	0	3554
COOK	92	29	336	11	549	1766	0	0	405	0	114	135	0	0	0	0	9	0	0	0	0	0	3437
KOOCHICH.	1980	650	746	113	239	5957	792	129	10366	1276	13	184	0	0	178	0	0	18	0	0	0	0	22641
LAKE	348	0	2097	304	400	1727	2	11	2258	0	0	934	10	0	0	0	0	0	0	0	0	0	8041
ST.LOUIS	1105	52	5815	1157	903	3339	302	1	17307	1106	5	782	0	0	0	0	0	1	0	0	0	0	31875
UNIT TOTAL	3562	731	9148	1597	2095	12833	1098	182	33144	2382	149	2406	10	0	198	0	4	21	37	1	0	0	69598
NORTHERN PINE																							
AITKIN	51	0	85	52	47	121	243	330	2360	0	203	255	0	0	219	5	45	55	179	41	0	0	4291
BECKER	116	0	193	115	17	9	18	24	174	2	57	33	0	0	75	0	9	0	77	40	0	0	959
BELTRAMI	718	86	1377	330	184	961	119	13	3993	1	102	586	0	0	73	0	13	7	29	3	0	0	8595
CASS	87	3	1566	600	254	103	124	2	2523	0	39	348	0	0	8	0	0	0	29	1	0	0	5687
CLEARWATER	31	0	681	192	23	228	158	277	2431	35	0	261	0	0	453	0	0	0	70	47	0	0	4847
CROW WING	2	6	699	156	90	0	2	8	563	0	62	45	0	0	44	0	19	24	157	32	0	0	1903
HUBBARD	22	4	933	104	36	16	72	0	2060	0	0	15	0	0	0	0	0	0	0	0	0	0	3258
ITASCA	1577	74	1005	347	292	1427	497	49	11495	53	239	733	0	0	26	0	0	0	7	0	0	60	17881
LAKE-WOODS	16	60	399	27	24	1238	26	5	581	57	0	11	0	0	7	0	0	2	0	0	0	0	2453
MAHNOMEN	0	0	4	8	1	0	26	59	283	6	28	11	0	0	74	0	0	0	56	167	0	0	713
ROSEAU	12	0	940	8	0	206	21	2	160	0	0	0	0	0	0	0	0	0	0	0	0	0	1349
WADENA	0	0	476	97	10	0	0	4	322	63	12	1	0	0	18	0	1	0	13	9	0	0	1026
UNIT TOTAL	2432	223	8358	2036	978	4309	1306	773	26945	217	742	2299	0	0	997	5	87	88	617	330	0	60	53002
CENTRAL HARDWOODS																							
ANOKA	0	1	0	4	4	5	0	25	418	106	4	5	0	2	104	0	0	0	11	2	0	0	691
BENTON	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	2	2	2	1	0	0	10
CARVER	0	0	0	0	0	0	0	1	0	0	18	0	0	1	18	0	8	7	11	8	0	0	72
CHISAGO	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	6	1	0	0	11
DAKOTA	0	0	0	0	0	0	0	0	0	0	1	0	0	2	5	0	2	4	10	0	0	0	24
DOUGLAS	0	0	0	0	0	0	0	3	7	0	6	0	0	2	6	0	0	0	4	2	0	0	30
FILLMORE	0	0	0	0	0	0	0	1	1	0	88	12	0	6	177	9	34	0	597	169	21	1	1116
GOODHUE	0	0	0	0	0	11	0	24	26	0	36	7	0	51	71	8	63	46	40	15	15	17	430
HENNEPIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0	36
HOUSTON	0	0	0	0	0	0	0	1	9	0	73	1	0	36	45	0	23	1	440	68	43	14	754
ISANTI	0	0	0	0	7	0	0	17	4	0	1	0	0	5	11	0	2	4	9	3	0	0	63
KANABEC	0	0	0	0	0	0	0	0	265	0	14	0	0	20	11	0	3	6	57	5	0	0	381
LE SUEUR	0	0	0	0	0	0	0	20	0	0	54	0	0	26	56	0	23	12	38	16	2	2	249
MILLE LACS	0	0	0	0	2	3	64	47	1492	0	83	59	0	38	114	0	3	12	188	63	0	2	2170
MORRISON	0	0	76	22	5	0	0	5	424	0	26	20	0	2	59	0	0	6	42	56	0	0	743
OLMSTEAD	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	1	2	26	7	10	0	50
OTTER TAIL	0	0	0	1	8	0	4	45	398	63	239	19	0	1	96	0	11	0	102	42	0	0	1029
PINE	3	0	98	8	0	0	0	36	1003	0	34	35	0	0	43	0	3	5	13	6	0	0	1287
RICE	0	0	0	1	0	0	0	7	0	0	21	0	0	15	25	0	16	3	23	15	6	4	136
SCOTT	0	0	0	0	0	0	0	4	0	0	24	0	0	2	25	0	10	8	18	10	0	1	102
SHERBURNE	0	0	0	0	0	0	0	12	0	0	1	0	0	1	5	0	0	6	29	0	0	0	54
STEARNS	0	0	0	0	0	0	0	10	9	0	41	1	0	7	83	0	2	0	16	9	0	0	178
TODD	0	0	22	1	0	0	0	8	336	84	24	4	0	2	57	0	6	8	31	17	0	0	600
WABASHA	0	0	0	0	1	0	0	5	10	0	48	2	0	108	75	0	7	32	488	50	7	34	867
WINONA	0	0	0	0	0	0	0	11	1	0	73	10	0	110	92	0	17	6	443	62	7	50	882
WRIGHT	0	0	0	0	0	0	0	1	1	0	1	0	0	2	4	0	8	0	0	0	0	0	17
UNIT TOTAL	3	1	196	37	27	19	68	283	4406	253	912	175	0	440	1224	17	244	170	2644	627	111	125	11982
PRAIRIE																							
BLUE EARTH	0	0	0	0	0	0	0	1	0	0	0	0	0	11	4	0	0	0	0	0	4	0	20
BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
CHIPPEWA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	22
CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0	0	0	0	0	28
FARIBAULT	0	0	0	0	0	0	0	0	0	0	0	0	0	83	0	0	0	0	0	0	0	0	83
KANDIYOHI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MCLEOD	0	0	0	0	0	0	0	17	1	0	24	0	0	185	133	0	0	19	8	9	0	0	396
MARSHALL	0	0	0	0	0	29	0	0	0	0	0	7	0	0	0	0	0	0	0	3	0	0	39
MEEKER	0	0	0	0	0	0	0	17	1	0	13	0	0	87	68	0	0	12	9	11	0	0	218
NICOLLET	0	0	0	0	0	0	0	8	0	0	25	0	0	7	26	0	9	5	17	8	2	0	107
NORMAN	0	0	0	0	0	0	0	0	0	0	0	0	0	37	0	0	0	0	0	0	0	0	37
PENNINGTON	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	4
POLK	0	0	5	2	0	172	50	18	0	0	22	0	0	100	49	0	0	0	0	5	0	0	423
REDWOOD	0	0	0	0	0	0	0	1	0	0	0	0	0	14	3	0	0	1	0	0	0	0	19
RENVILLE	0	0	0	0	0	0	0	1	0	0	0	0	0	13	3	0	0	1	0	0	0	0	18
SIBLEY	0	0	0	0	0	0	0	1	0	0	7	0	0	20	8	0	2	1	2	0	0	0	41
STEELE	0	0	0	0	0	0	0	1	0	0	2	0	0	1	4	0	6	0	3	1	0	0	18
STEVENS	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	0	0	0	0	4
SWIFT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	22
WASECA	0	0	0	0	0	0	0	2	0	0	7	0	0	2	7	0	2	2	5	2	0	0	29
UNIT TOTAL	0	0	5	2	0	201	50	68	2	0	101	7	0	590	350	0	19	42	44	42	6	0	1529
STATE TOTAL	6197	955	17707	3672	3100	17362	2522	1306	64497	2852	1904	4887	10	1030	2769	22	354	321	3342	1000	117	185	136111

Table 8.—*Sawtimber removals for industrial roundwood by species, unit, and county in Minnesota, 1973*
(In thousand board feet, International ¼-inch rule)

UNIT AND COUNTY	BALSAM FIR	CEDAR	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMARACK	ASH	ASPEN	BALSAM POPLAR	BASSWOOD	PAPER BIRCH	YELLOW BIRCH	COTTONWOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	WALNUT	OTHER HARDWOODS	ALL SPECIES
NORTHERN ASPEN-BIRCH																							
CARLTON	90	0	307	35	13	98	4	157	6535	0	82	309	0	0	98	0	18	16	70	5	0	0	7837
COOK	365	139	707	22	2978	4516	0	0	1366	0	68	680	2	0	0	0	0	0	0	0	0	0	10743
KOOCHICHING	4709	2945	1483	458	601	13417	1744	645	24346	1161	65	546	0	0	882	0	0	90	0	0	0	0	53092
LAKE	1428	0	4693	1188	2057	4296	5	51	5896	0	0	4173	59	0	0	0	0	0	0	0	0	0	24046
ST. LOUIS	3136	241	12440	5168	4542	7695	664	3	42596	1622	28	1170	0	0	0	0	0	9	2	0	0	0	79266
UNIT TOTAL	9828	3325	19630	6871	10191	30022	2417	856	80739	2783	243	6828	61	0	980	0	18	115	72	5	0	0	174984
NORTHERN PINE																							
AITKIN	117	0	242	274	260	271	532	1638	6561	0	1013	496	0	0	1686	24	232	275	920	214	0	0	14155
BECKER	523	0	717	639	90	27	89	124	668	10	289	163	0	0	176	0	48	0	400	208	0	0	4371
BELTRAMI	1423	376	2847	1253	908	2175	243	57	9515	8	509	442	0	0	741	0	8	7	142	18	0	0	20472
CASS	942	9	3748	2354	1322	225	273	10	6195	0	194	344	0	0	42	0	0	2	149	5	0	0	15114
CLEARWATER	119	0	2793	830	109	502	351	1378	6875	171	0	1040	0	0	2355	0	0	0	362	242	0	0	17027
CROW WING	3	0	1569	740	455	0	9	44	1596	0	313	89	0	0	221	0	99	121	813	167	0	0	6239
HUBBARD	50	0	2058	329	150	36	161	0	4688	0	0	9	0	0	0	0	0	0	0	0	0	0	7481
ITASCA	4295	294	2545	1737	1525	3424	1095	242	36709	58	1188	1100	0	0	135	0	0	2	36	1	0	301	54687
LAKE-WOODS	40	133	1359	97	109	2760	66	25	2001	34	0	56	0	0	40	0	0	10	0	0	0	0	6730
MAHNOMEN	0	0	23	50	5	0	69	291	1073	30	201	51	0	0	171	0	0	0	347	809	0	0	3320
ROSEAU	40	0	3341	15	0	492	48	11	395	0	0	0	0	0	0	0	0	0	0	0	0	0	4342
WALENA	0	0	1167	494	30	0	0	16	1576	357	55	5	0	0	88	0	8	0	70	45	0	0	3911
UNIT TOTAL	7452	812	22409	8812	4963	9912	2936	3836	77852	668	3762	3795	0	0	4055	24	395	417	3239	1709	0	301	157849
CENTRAL HARDWOODS																							
ANOKA	0	5	0	23	23	28	0	125	1664	526	17	24	0	15	518	0	0	0	58	13	0	0	3039
BENTON	0	0	0	0	0	0	0	1	1	0	9	0	0	0	15	0	13	10	11	7	0	0	67
CARVER	0	0	0	0	0	0	0	9	0	0	92	0	0	7	91	0	43	35	57	41	0	3	378
CHISAGO	0	0	0	1	0	0	0	3	9	0	0	2	0	0	15	0	2	0	28	5	0	0	65
DAKOTA	0	0	0	0	0	0	0	1	0	0	4	0	0	10	26	0	13	21	51	2	0	0	128
DOUGLAS	0	0	0	0	0	0	0	17	32	0	31	2	0	10	33	0	3	0	25	11	1	0	165
FILLMORE	0	0	0	0	0	0	0	8	4	0	473	56	0	36	881	49	178	0	3102	846	107	8	5788
GOODHUE	0	0	0	0	0	55	0	120	104	0	178	40	0	276	764	39	350	233	209	79	77	80	2204
HENNEPIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	21
HOUSTON	0	0	0	0	0	0	0	6	33	0	360	5	0	192	227	0	118	5	2328	381	220	80	3955
ISANTI	0	0	0	1	41	0	0	82	18	0	8	0	0	24	51	0	13	19	49	20	0	0	326
KANABEC	0	0	0	0	0	0	0	3	797	0	77	2	0	100	48	0	18	30	294	26	0	0	1395
LE SUEUR	0	0	0	0	0	0	0	104	0	0	269	0	0	142	282	0	116	67	200	83	13	11	1287
MILLE LACS	0	0	0	0	10	6	143	169	3805	0	353	49	0	193	564	0	17	61	765	327	0	11	6473
MORRISON	0	0	150	113	22	0	0	26	1140	0	133	37	0	10	392	0	1	29	222	288	1	0	2464
OLMSTEAD	0	0	0	0	1	0	0	2	1	0	9	1	1	7	14	0	5	10	139	33	50	0	273
OTTER TAIL	0	0	1	3	47	0	18	232	2177	357	1299	99	0	5	481	0	58	0	538	221	0	0	5536
PINE	7	0	195	17	2	1	0	177	2337	0	167	51	0	0	213	0	17	24	63	29	0	0	3300
RICE	0	0	0	5	0	0	0	37	0	0	107	0	0	76	127	0	84	21	119	76	28	20	700
SCOTT	0	0	0	0	0	0	0	20	0	0	121	0	0	14	126	0	56	45	93	55	0	6	536
SHERBURNE	0	0	0	0	0	0	0	55	0	0	6	0	0	6	24	0	2	33	147	3	0	0	276
STEARNS	0	0	0	0	0	0	0	47	33	0	203	6	0	35	415	0	11	2	82	50	1	0	885
TODD	0	0	45	3	1	0	0	46	1874	472	121	22	0	10	288	0	31	43	162	86	0	0	3204
WABASHA	0	0	0	0	4	0	0	24	39	0	234	12	2	430	949	2	34	158	2518	259	37	29	4031
WINONA	0	0	0	0	2	0	0	52	6	0	363	47	1	356	951	0	89	33	2287	344	36	30	3897
WRIGHT	0	0	0	0	0	0	0	4	3	0	6	0	0	12	17	0	52	0	2	3	0	0	99
UNIT TOTAL	7	5	391	166	153	90	161	1370	14077	1355	4640	455	4	1966	5433	90	1324	879	13549	3328	571	278	50492
PRAIRIE																							
BLUE EARTH	0	0	0	0	0	0	0	8	0	0	0	0	0	51	16	0	0	0	0	0	21	0	96
BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6
CHIPPEWA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	111	0	0	0	0	0	0	0	111
CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	138	0	0	0	0	0	0	0	0	138
FARIBAULT	0	0	0	0	0	0	0	0	0	0	0	0	0	413	0	0	0	0	0	0	0	0	413
KANDIYOHI	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
MCLEOD	0	0	0	0	0	0	0	84	6	0	117	0	0	920	661	0	4	95	45	49	0	0	1981
MARSHALL	0	0	0	0	0	138	0	0	0	0	0	39	0	0	0	0	0	0	0	17	0	0	194
MEEKER	0	0	0	0	0	0	0	84	6	0	61	0	0	433	338	0	0	57	46	58	0	0	1083
NICOLLET	0	0	0	0	0	0	0	45	0	0	125	0	0	35	133	0	50	26	87	40	9	2	552
NORMAN	0	0	0	0	0	0	0	0	0	0	0	0	0	183	0	0	0	0	0	0	0	0	183
PENNINGTON	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	19	0	0	23
POLK	0	0	11	4	0	380	113	88	0	0	107	0	0	500	238	0	0	0	0	21	0	0	1462
REDWOOD	0	0	0	0	0	0	0	5	0	0	2	0	0	73	17	0	0	5	0	1	0	0	103
RENVILLE	0	0	0	0	0	0	0	5	0	0	1	0	0	69	17	0	0	5	0	1	0	0	98
SIBLEY	0	0	0	0	0	0	0	4	0	0	39	0	0	116	47	0	11	8	15	1	0	0	241
STEELE	0	0	0	0	0	0	0	5	0	0	15	0	0	4	17	0	30	3	16	6	2	0	98
STEVENS	0	0	0	0	0	0	0	5	0	0	0	0	0	10	5	0	0	0	0	0	0	0	20
SWIFT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	111	0	0	0	0	0	0	0	111
WASECA	0	0	0	0	0	0	0	12	0	0	35	0	0	14	35	0	15	14	24	11	3	0	163
UNIT TOTAL	0	0	11	4	0	518	113	345	12	0	506	39	0	2961	1746	0	110	219	233	224	35	2	7078
STATE TOTAL	16887	4142	42441	15853	15307	40542	5627	6407	172680	4806	9151	11117	65	4927	13314	114	1847	1630	17093	5266	606	581	390403

Table 9.— *Minnesota pulpwood production by species group, 1946-1973*
(In thousand standard cords, rough wood basis)

Year	Roundwood							Residue		Total
	Pine	Spruce	Balsam fir	Tamarack	Aspen	Birch	Other hardwoods	Softwood	Hardwood	
1946	333	258	93	19	265	1	(1)	—	8	977
1947	266	225	119	18	221	(1)	—	—	3	852
1948	286	269	150	5	276	2	(1)	—	—	988
1949	163	190	117	3	133	(1)	—	—	—	606
1950	187	185	126	1	248	(1)	1	—	—	748
1951	340	280	153	18	283	1	2	—	—	1,077
1952	194	293	163	13	270	2	2	—	—	937
1953	218	215	101	6	268	1	4	—	—	813
1954	214	237	118	7	254	1	6	—	—	837
1955	218	265	120	8	266	4	5	—	—	886
1956	259	287	140	14	353	5	9	—	—	1,067
1957	223	345	173	18	277	7	6	—	—	1,049
1958	198	241	116	14	324	2	8	—	—	903
1959	239	220	130	11	381	1	12	—	—	994
1960	225	256	145	19	392	1	10	—	—	1,048
1961	206	240	111	8	368	1	34	—	—	968
1962	201	217	110	9	406	2	34	—	—	979
1963	208	255	102	13	433	(1)	51	—	1	1,063
1964	204	256	90	12	451	(1)	45	(1)	5	1,063
1965	181	237	74	12	468	(1)	41	1	4	1,018
1966	256	172	80	7	612	1	31	2	13	1,174
1967	202	218	76	40	591	3	39	7	29	1,205
1968	203	157	43	26	583	1	22	16	36	1,087
1969	237	154	40	21	660	3	32	5	40	1,192
1970	221	181	45	36	600	31	27	17	66	1,224
1971	214	168	40	32	607	34	31	22	48	1,196
1972	216	192	66	31	689	42	30	25	63	1,354
1973	205	215	66	32	673	42	36	26	82	1,377

[1] Less than 500 cords.

Table 10.— *Pulpwood receipts in Minnesota by species group, 1946-1973*
(In thousand standard cords, roundwood basis)

Year	Roundwood							Residue		Total
	Pine	Spruce	Balsam fir	Tamarack	Aspen	Birch	Other hardwoods	Softwood	Hardwood	
1946	175	141	62	6	207	—	—	—	8	599
1947	160	122	48	6	158	—	—	—	3	497
1948	187	195	77	3	264	—	(1)	—	—	726
1949	111	114	48	1	144	—	—	—	—	418
1950	177	108	41	1	267	—	1	—	—	595
1951	241	202	74	9	296	—	1	—	—	823
1952	154	191	62	9	302	(1)	2	—	—	720
1953	165	153	42	6	292	(1)	4	—	—	662
1954	163	171	52	6	289	(1)	6	—	—	687
1955	177	176	58	7	298	2	5	—	—	723
1956	204	176	69	9	365	3	9	—	—	835
1957	156	210	74	10	292	5	6	—	—	753
1958	161	133	55	3	338	2	7	—	—	699
1959	195	128	69	3	405	1	12	—	—	813
1960	164	116	85	3	408	1	10	—	—	787
1961	187	120	67	—	375	1	34	—	—	784
1962	189	111	75	—	418	1	34	—	—	828
1963	190	157	77	—	446	(1)	50	—	1	921
1964	213	153	68	—	455	—	43	—	6	938
1965	205	138	60	(1)	462	(1)	39	—	8	912
1966	207	155	60	(1)	588	1	31	—	21	1,063
1967	179	115	49	2	551	1	25	5	31	958
1968	206	92	33	(1)	576	(1)	27	13	46	993
1969	231	84	33	(1)	633	3	40	7	51	1,082
1970	188	111	42	—	557	31	33	22	74	1,058
1971	154	116	40	(1)	585	34	38	32	64	1,063
1972	166	128	65	4	686	41	36	23	75	1,224
1973	156	142	60	7	618	41	38	51	110	1,223

(1) Less than 500 cords

Table 11.—*Minnesota pulpwood production by species group and destination, 1973*
(In thousand standard cords, rough wood basis)

Species group	Destination of wood				
	Minnesota	Wisconsin	Michigan	Other States and Canada	Total
ROUNDWOOD[1]:					
Pine	154	49	—	2	205
Spruce	142	57	—	16	215
Balsam fir	61	5	—	(2)	66
Tamarack	6	26	—	—	32
Aspen	609	56	(2)	8	673
Birch	41	(2)	(2)	1	42
Other hardwoods	34	(2)	(2)	2	36
Total	1,047	193	(2)	29	1,269
RESIDUE:					
Softwoods	24	1	—	1	26
Hardwoods	82	—	—	—	82
ALL MATERIAL	1,153	194	(2)	30	1,377

[1] Includes chips from roundwood.
[2] Less than 500 cords.

Table 12.—*Pulpwood receipts in Minnesota by species group and area of origin, 1973*
(In thousand standard cords, rough wood basis)

Species group	Area of origin				
	Minnesota	Wisconsin	Other states	Canada	Total
ROUNDWOOD[1]:					
Pine	155	—	—	1	156
Spruce	141	—	—	1	142
Balsam fir	60	—	—	—	60
Tamarack	7	—	—	—	7
Aspen	609	—	—	9	618
Birch	41	—	—	—	41
Other hardwoods	34	—	—	4	38
Total	1,047	—	—	15	1,062
RESIDUE:					
Softwoods	23	—	26	2	51
Hardwoods	82	15	3	10	110
ALL MATERIAL	1,152	15	29	27	1,223

[1] Includes chips from roundwood.

Table 13.—*Pulpwood production from roundwood by unit, county, and species group, Minnesota, 1973*
(In standard cords, rough wood basis)

County	Balsam fir	Jack pine	Red pine	White pine	Spruce	Tamarack	soft-woods	Ash	Aspen	Balsam poplar	American Basswood	Paper birch	Eastern Cottonwood	Elm	Hard maple	Soft maple	Red oak	Other species	Hard-woods	All species
NORTHERN ASPEN-BIRCH UNIT																				
Carlton	450	2,070	102	45	557	24	3,268	122	37,920	—	—	4,710	—	9	15	—	357	—	43,133	46,401
Cook	891	4,325	148	314	19,987	—	25,665	—	2,000	—	1,529	—	—	—	—	—	—	—	3,529	29,194
Koochiching	24,144	9,957	616	2,747	76,321	10,354	124,139	—	136,217	15,794	—	1,188	—	—	—	—	—	—	153,199	277,338
Lake	372	25,360	1,667	696	20,133	27	48,255	—	26,185	—	—	2,722	—	—	—	—	—	—	28,957	77,212
St. Louis	11,305	71,685	3,902	1,842	41,926	3,946	134,606	16	204,676	11,811	—	8,712	—	—	—	6	—	—	225,221	359,827
Unit total	37,162	113,397	6,435	5,644	158,944	14,351	335,933	138	406,998	27,605	1,529	17,382	—	9	15	6	357	—	454,039	789,972
NORTHERN PINE UNIT																				
Aitkin	638	790	70	—	1,557	3,160	6,215	—	21,682	—	—	2,376	—	—	—	—	—	—	24,058	30,273
Becker	204	1,009	32	21	83	—	1,349	—	193	—	—	—	—	—	—	—	—	—	193	1,542
Beltrami	9,153	11,020	1,020	311	12,156	1,354	35,014	9	51,363	—	—	7,531	—	68	175	100	30	—	59,276	94,290
Cass	869	12,189	1,682	353	1,336	1,621	18,050	—	29,482	—	—	4,239	—	—	—	—	—	—	33,721	51,771
Clearwater	142	1,960	706	73	2,966	2,076	7,923	—	22,511	—	—	792	—	—	—	—	—	—	23,303	31,226
Crow Wing	20	8,354	427	165	—	—	8,966	—	5,147	—	—	418	—	—	—	—	—	—	5,565	14,531
Hubbard	276	9,279	608	191	212	933	11,499	—	28,277	—	—	198	—	—	—	—	—	—	28,475	39,974
Itasca	16,683	10,802	557	393	17,240	6,499	52,174	—	61,178	627	—	7,920	—	—	—	—	—	—	69,725	121,899
Lake of the Woods	176	2,835	216	79	15,961	281	19,548	—	5,160	761	—	—	—	—	—	—	—	—	5,921	25,469
Mahnomen	—	—	—	—	—	284	284	—	438	—	—	—	—	—	—	—	—	—	438	722
Roseau	107	5,711	100	—	2,519	194	8,631	—	1,901	—	—	—	—	—	—	—	—	—	1,901	10,532
Wadena	—	5,344	201	108	—	—	5,653	—	799	—	—	—	—	—	—	—	—	—	799	6,452
Unit total	28,268	69,293	5,619	1,694	54,030	16,402	175,306	9	228,131	1,388	—	23,474	—	68	175	100	30	—	253,375	428,681
CENTRAL HARDWOOD UNIT																				
Hennepin	—	—	—	—	—	—	—	—	—	—	—	—	—	478	—	—	—	—	478	478
Kanabec	—	—	—	—	—	—	—	—	2,065	—	—	—	—	—	—	—	—	—	2,065	2,065
Mille Lacs	—	—	—	—	38	849	887	199	17,311	—	199	736	—	—	—	—	596	—	19,041	19,928
Morrison	—	1,009	32	21	—	—	1,062	—	4,361	—	—	198	—	—	—	—	—	—	4,559	5,621
Pine	20	1,317	99	1	5	—	1,442	—	13,481	—	—	396	—	—	—	—	—	—	13,877	15,319
Todd	—	301	14	—	—	—	315	—	—	—	—	—	—	—	—	—	—	—	—	315
Wabasha	—	—	—	—	—	—	—	—	—	—	—	—	412	412	—	—	—	424	1,248	1,248
Winona	—	—	—	—	—	—	—	—	—	—	—	—	642	642	—	—	—	660	1,944	1,944
Unit total	20	2,627	145	22	43	849	3,706	199	37,218	—	199	1,330	1,054	1,532	—	—	596	1,084	43,212	46,918
PRAIRIE UNIT																				
Polk	—	75	30	1	2,258	669	3,033	—	—	—	—	—	—	—	—	—	—	—	—	3,033
Unit total	—	75	30	1	2,258	669	3,033	—	—	—	—	—	—	—	—	—	—	—	—	3,033
State total	65,450	185,392	12,229	7,361	215,275	32,271	517,978	346	672,347	28,993	1,728	42,186	1,054	1,609	190	106	983	1,084	750,626	1,268,604

Table 14.—*Saw log production in Minnesota by species, 1960 and 1973*
(In thousand board feet, International 1/4-inch rule)

Species	1960	1973	Change
Softwoods:			
Balsam fir	4,170	5,638	1,468
Cedar	2,050	4,428	2,378
Jack pine	23,468	13,294	−10,174
Red pine	16,090	12,500	−3,590
White pine	25,678	14,489	−11,189
Spruce	3,383	4,686	1,303
Tamarack	1,287	198	−1,089
All swds.	76,126	55,233	−20,893
Hardwoods:			
Ash	4,223	6,272	2,049
Aspen	37,587	60,704	23,117
Balsam poplar	621	2,333	1,712
Basswood	9,165	7,299	−1,866
Paper birch	3,722	3,893	171
Yellow birch	874	49	−825
Cottonwood	4,993	3,850	−1,143
Elm	8,876	12,817	3,941
Hard maple	585	1,431	846
Soft maple	1,582	1,485	−97
Red oak	15,033	15,783	750
White oak	4,147	5,226	1,079
Walnut	234	574	340
Other hwds.	342	572	230
All hwds.	91,984	122,288	30,304
All species	168,110	177,521	9,411

Table 15.—*Saw log production by unit, species, and State of destination, Minnesota, 1973*
(In thousand board feet, International ¼-inch rule)

ALL UNITS

SPECIES	MINNESOTA	WISCONSIN	MISSOURI	IOWA	OTHER STATES	TOTAL
SOFTWOODS:						
BALSAM FIR	4198	1440	0	0	0	5638
CEDAR	4428	0	0	0	0	4428
JACK PINE	12964	330	0	0	0	13294
RED PINE	12255	245	0	0	0	12500
WHITE PINE	14204	285	0	0	0	14489
SPRUCE	4686	0	0	0	0	4686
TAMARACK	198	0	0	0	0	198
TOTAL SWDS	52933	2300	0	0	0	55233
HARDWOODS:						
ASH	6262	10	0	0	0	6272
ASPEN	60483	221	0	0	0	60704
BALSAM POP	2333	0	0	0	0	2333
BASSWOOD	6724	575	0	0	0	7299
PAP. BIRCH	3886	7	0	0	0	3893
YEL. BIRCH	49	0	0	0	0	49
COTTONWOOD	3679	126	0	45	0	3850
ELM	12690	102	0	25	0	12817
HICKORY	117	1	0	0	0	118
HARD MAPLE	1421	10	0	0	0	1431
SOFT MAPLE	1385	100	0	0	0	1485
RED OAK	12565	3200	0	18	0	15783
WHITE OAK	4964	260	0	2	0	5226
WALNUT	317	63	194	0	0	574
OTHER SPP.	444	10	0	0	0	454
TOTAL HWDS	117319	4685	194	90	0	122288
ALL SPECIES	170252	6985	194	90	0	177521

NORTHERN ASPEN-BIRCH UNIT

SPECIES	MINNESOTA	WISCONSIN	MISSOURI	IOWA	OTHER STATES	TOTAL
SOFTWOODS:						
BALSAM FIR	1838	1440	0	0	0	3278
CEDAR	3574	0	0	0	0	3574
JACK PINE	2309	330	0	0	0	2639
RED PINE	5365	245	0	0	0	5610
WHITE PINE	9250	285	0	0	0	9535
SPRUCE	3558	0	0	0	0	3558
TAMARACK	2	0	0	0	0	2
TOTAL SWDS	25896	2300	0	0	0	28196
HARDWOODS:						
ASH	846	0	0	0	0	846
ASPEN	11462	180	0	0	0	11642
BALSAM POP	1560	0	0	0	0	1560
BASSWOOD	147	0	0	0	0	147
PAP. BIRCH	1338	0	0	0	0	1338
YEL. BIRCH	45	0	0	0	0	45
COTTONWOOD	0	0	0	0	0	0
ELM	977	0	0	0	0	977
HICKORY	0	0	0	0	0	0
HARD MAPLE	18	0	0	0	0	18
SOFT MAPLE	103	0	0	0	0	103
RED OAK	58	0	0	0	0	58
WHITE OAK	6	0	0	0	0	6
WALNUT	0	0	0	0	0	0
OTHER SPP.	0	0	0	0	0	0
TOTAL HWDS	16560	180	0	0	0	16740
ALL SPECIES	42456	2480	0	0	0	44936

(TABLE 15 CONTINUED ON NEXT PAGE)

(TABLE 15 CONTINUED)

NORTHERN PINE UNIT

SPECIES					
SOFTWOODS:					
BALSAM FIR	2356	0	0	0	0	2356
CEDAR	849	0	0	0	0	849
JACK PINE	10654	0	0	0	0	10654
RED PINE	6743	0	0	0	0	6743
WHITE PINE	4801	0	0	0	0	4801
SPRUCE	889	0	0	0	0	889
TAMARACK	176	0	0	0	0	176
TOTAL SWDS	26468	0	0	0	0	26468
HARDWOODS:					
ASH	3827	0	0	0	0	3827
ASPEN	43675	0	0	0	0	43675
BALSAM POP	248	0	0	0	0	248
BASSWOOD	3469	0	0	0	0	3469
PAP. BIRCH	2168	0	0	0	0	2168
YEL. BIRCH	0	0	0	0	0	0
COTTONWOOD	0	0	0	0	0	0
ELM	4942	0	0	0	0	4942
HICKORY	25	0	0	0	0	25
HARD MAPLE	403	0	0	0	0	403
SOFT MAPLE	397	0	0	0	0	397
RED OAK	3137	0	0	0	0	3137
WHITE OAK	1773	0	0	0	0	1773
WALNUT	0	0	0	0	0	0
OTHER SPP.	300	0	0	0	0	300
TOTAL HWDS	64364	0	0	0	0	64364
ALL SPECIES	90832	0	0	0	0	90832

CENTRAL HARDWOODS UNIT

SPECIES	MINNESOTA	WISCONSIN	MISSOURI	IOWA	OTHER STATES	TOTAL
SOFTWOODS:						
BALSAM FIR	4	0	0	0	0	4
CEDAR	5	0	0	0	0	5
JACK PINE	1	0	0	0	0	1
RED PINE	147	0	0	0	0	147
WHITE PINE	153	0	0	0	0	153
SPRUCE	90	0	0	0	0	90
TAMARACK	20	0	0	0	0	20
TOTAL SWDS	420	0	0	0	0	420
HARDWOODS:						
ASH	1250	10	0	0	0	1260
ASPEN	5330	41	0	0	0	5371
BALSAM POP	525	0	0	0	0	525
BASSWOOD	2651	575	0	0	0	3226
PAP. BIRCH	341	7	0	0	0	348
YEL. BIRCH	4	0	0	0	0	4
COTTONWOOD	921	126	0	45	0	1092
ELM	5106	102	0	25	0	5233
HICKORY	92	1	0	0	0	93
HARD MAPLE	926	10	0	0	0	936
SOFT MAPLE	690	100	0	0	0	790
RED OAK	9157	3200	0	18	0	12375
WHITE OAK	2955	260	0	2	0	3217
WALNUT	302	63	178	0	0	543
OTHER SPP.	142	10	0	0	0	152
TOTAL HWDS	30392	4505	178	90	0	35165
ALL SPECIES	30812	4505	178	90	0	35585

(TABLE 15 CONTINUED ON NEXT PAGE)

(TABLE 15 CONTINUED)

PRAIRIE UNIT

SOFTWOODS:						
BALSAM FIR	0	0	0	0	0	0
CEDAR	0	0	0	0	0	0
JACK PINE	0	0	0	0	0	0
RED PINE	0	0	0	0	0	0
WHITE PINE	0	0	0	0	0	0
SPRUCE	149	0	0	0	0	149
TAMARACK	0	0	0	0	0	0
TOTAL SWDS	149	0	0	0	0	149
HARDWOODS:						
ASH	339	0	0	0	0	339
ASPEN	16	0	0	0	0	16
BALSAM POP	0	0	0	0	0	0
BASSWOOD	457	0	0	0	0	457
PAP. BIRCH	39	0	0	0	0	39
YEL. BIRCH	0	0	0	0	0	0
COTTONWOOD	2758	0	0	0	0	2758
ELM	1665	0	0	0	0	1665
HICKORY	0	0	0	0	0	0
HARD MAPLE	74	0	0	0	0	74
SOFT MAPLE	195	0	0	0	0	195
RED OAK	213	0	0	0	0	213
WHITE OAK	230	0	0	0	0	230
WALNUT	15	0	16	0	0	31
OTHER SPP.	2	0	0	0	0	2
TOTAL HWDS	6003	0	16	0	0	6019
ALL SPECIES	6152	0	16	0	0	6168

Table 16.—*Saw log production by unit, county, and species group, Minnesota, 1973*
(In thousand board feet, International ¼-inch rule)

UNIT AND COUNTY	BALSAM FIR	CEDAR	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMARACK	ASH	ASPEN	BALSAM POPLAR	BASSWOOD	PAPER BIRCH	YELLOW BIRCH	COTTONWOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	WALNUT	OTHER HARDWOODS	ALL SPECIES
NORTHERN ASPEN-BIRCH																							
CARLTON	15	0	0	21	6	1	0	151	169	0	82	53	0	0	97	0	18	13	56	6	0	0	688
COOK	125	150	72	0	2988	1249	0	0	1393	0	0	650	0	0	0	0	0	0	0	0	0	0	6627
KOOCHICH.	701	3164	0	356	198	628	2	643	2543	462	65	329	0	0	480	0	0	90	0	0	0	0	10061
LAKE	1594	0	907	881	1992	985	0	50	1104	0	0	302	45	0	0	0	0	0	0	0	0	0	7860
ST.LOUIS	843	260	1660	4352	4351	695	0	2	6433	1098	0	4	0	0	0	0	0	0	2	0	0	0	19700
UNIT TOTAL	3278	3574	2639	5610	9535	3558	2	846	11642	1560	147	1338	45	0	577	0	18	103	58	6	0	0	44936
NORTHERN PINE																							
AITKIN	11	0	135	269	265	10	0	1635	3284	0	956	315	0	0	1,84	25	241	263	955	222	0	0	9670
BECKER	529	0	614	646	89	14	97	123	854	10	231	162	0	0	375	0	50	0	383	216	0	0	4393
BELTRAMI	90	402	978	888	876	139	10	57	1547	8	508	109	0	0	338	0	0	3	146	19	0	0	6118
CASS	104	10	657	1486	1294	0	0	10	1543	0	190	149	0	0	42	0	0	0	155	5	0	0	5645
CLEARWATER	103	0	2576	679	100	3	2	1375	4301	170	0	1003	0	0	2250	0	0	0	376	251	0	0	13189
CROW WING	0	0	309	665	439	0	10	44	1016	0	313	71	0	0	221	0	103	121	844	173	0	0	4329
HUBBARD	4	0	516	142	125	0	4	0	113	0	0	0	0	0	0	0	0	0	0	0	0	0	904
ITASCA	1480	312	975	1619	1495	567	2	241	29399	30	1180	278	0	0	134	0	0	0	37	1	0	300	38050
LAKE-WOODS	11	125	767	66	99	82	18	25	38	0	0	25	0	0	40	0	0	10	0	0	0	0	1306
MAHNOMEN	0	0	25	50	5	0	23	290	1341	30	40	51	0	0	376	0	0	0	171	839	0	0	3235
ROSEAU	24	0	2698	0	0	74	10	11	116	0	0	0	0	0	0	0	0	0	0	0	0	0	2933
WADENA	0	0	404	233	14	0	0	16	123	0	51	5	0	0	88	0	9	0	70	47	0	0	1060
UNIT TOTAL	2356	849	10654	6743	4801	889	176	3827	43675	248	3469	2168	0	0	4042	25	403	397	3137	1773	0	300	90832
CENTRAL HARDWOODS																							
ANOKA	0	5	0	24	24	30	0	124	2230	525	17	24	0	15	517	0	0	0	60	13	0	0	3608
BENTON	0	0	0	0	0	0	0	1	1	0	9	0	0	0	15	0	13	10	11	8	0	0	68
CARVER	0	0	0	0	0	0	0	9	0	0	92	0	0	7	91	0	45	35	59	43	0	3	384
CHISAGO	0	0	0	1	0	0	0	3	12	0	0	2	0	0	15	0	2	0	30	6	0	0	71
DAKOTA	0	0	0	0	0	0	0	0	0	0	0	0	0	10	20	0	0	0	30	0	0	0	60
DOUGLAS	0	0	0	0	0	0	0	11	27	0	31	2	0	10	21	0	3	0	13	11	1	0	130
FILLMORE	0	0	0	0	0	0	0	8	6	0	171	56	0	28	479	51	155	0	2888	864	107	8	5221
GOODHUE	0	0	0	0	0	60	0	120	140	0	170	40	0	100	300	40	100	220	200	80	80	80	1730
HENNEPIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUSTON	0	0	0	0	0	0	0	6	45	0	359	5	0	85	227	0	92	0	1637	299	198	2	2955
ISANTI	0	0	0	1	42	0	0	82	24	0	8	0	0	24	50	0	13	19	32	21	0	0	316
KANABEC	0	0	0	0	0	0	0	3	618	0	26	2	0	100	48	0	19	30	287	27	0	0	1160
LE SUEUR	0	0	0	0	0	0	0	102	0	0	260	0	0	65	248	0	109	39	190	85	13	11	1122
MILLE LACS	0	0	0	0	10	0	0	159	1242	0	304	16	0	158	563	0	12	60	745	339	0	11	3619
MORRISON	0	0	0	110	20	0	0	26	575	0	132	28	0	10	292	0	1	29	230	299	1	0	1753
OLMSTEAD	0	0	0	0	1	0	0	2	2	0	9	1	1	7	14	0	5	10	144	34	42	0	272
OTTER TAIL	0	0	1	3	47	0	20	150	180	0	334	53	0	5	411	0	60	0	423	299	0	0	1916
PINE	4	0	0	2	2	0	0	177	99	0	167	32	0	0	213	0	18	23	65	31	0	0	833
RICE	0	0	0	5	0	0	0	36	0	0	102	0	0	68	120	0	59	8	110	77	30	20	635
SCOTT	0	0	0	0	0	0	0	19	0	0	116	0	0	14	119	0	55	39	83	56	0	6	507
SHERBURNE	0	0	0	0	0	0	0	55	0	0	6	0	0	6	23	0	2	33	153	3	0	0	281
STEARNS	0	0	0	0	0	0	0	47	45	0	203	6	0	35	414	0	11	2	85	52	1	0	901
TODD	0	0	0	1	1	0	0	40	61	0	109	22	0	10	276	0	32	43	156	90	0	0	841
WABASHA	0	0	0	0	4	0	0	24	52	0	233	12	2	170	150	2	35	158	2477	268	33	10	3630
WINONA	0	0	0	0	2	0	0	52	8	0	362	47	1	153	190	0	93	32	2265	279	37	1	3522
WRIGHT	0	0	0	0	0	0	0	4	4	0	6	0	0	12	17	0	2	0	2	3	0	0	50
UNIT TOTAL	4	5	1	147	153	90	20	1260	5371	525	3226	348	4	1092	5933	93	936	790	12375	3217	543	152	35585
PRAIRIE																							
BLUE EARTH	0	0	0	0	0	0	0	8	0	0	0	0	0	56	16	0	0	0	0	0	16	0	90
BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6
CHIPPEWA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	111	0	0	0	0	0	0	0	111
CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	138	0	0	0	0	0	0	0	0	138
FAIRIBAULT	0	0	0	0	0	0	0	0	0	0	0	0	0	413	0	0	0	0	0	0	0	0	413
KANDIYOHI	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
MCLEOD	0	0	0	0	0	0	0	83	8	0	112	0	0	918	652	0	1	88	33	50	0	0	1945
MARSHALL	0	0	0	0	0	149	0	0	0	0	0	39	0	0	0	0	0	0	0	17	0	0	205
MEEKER	0	0	0	0	0	0	0	84	8	0	61	0	0	432	338	0	0	57	48	60	0	0	1088
NICOLLET	0	0	0	0	0	0	0	45	0	0	124	0	0	35	132	0	52	26	91	41	10	2	558
NORMAN	0	0	0	0	0	0	0	0	0	0	0	0	0	183	0	0	0	0	0	0	0	0	183
PENNINGTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	20
POLK	0	0	0	0	0	0	0	87	0	0	107	0	0	499	238	0	0	0	0	22	0	0	953
REDWOOD	0	0	0	0	0	0	0	5	0	0	2	0	0	35	5	0	0	5	0	1	0	0	53
RENVILLE	0	0	0	0	0	0	0	5	0	0	1	0	0	30	5	0	0	5	0	1	0	0	47
SIBLEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STEELE	0	0	0	0	0	0	0	5	0	0	15	0	0	4	17	0	6	3	16	7	2	0	75
STEVENS	0	0	0	0	0	0	0	5	0	0	0	0	0	10	5	0	0	0	0	0	0	0	20
SWIFT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	111	0	0	0	0	0	0	0	111
WASECA	0	0	0	0	0	0	0	12	0	0	35	0	0	9	35	0	15	5	25	11	3	0	150
UNIT TOTAL	0	0	0	0	0	149	0	339	16	0	457	39	0	2758	1665	0	74	195	213	230	31	2	6168
STATE TOTAL	5638	4428	13294	12500	14489	4686	198	6272	60704	2333	7299	3893	49	3850	12817	118	1431	1485	15783	5226	574	454	177521

Table 17.—*Saw log receipts in Minnesota by unit, species, and State of origin, 1973*

(In thousand board feet, International ¼-inch rule)

SPECIES	ALL STATES	MINNESOTA	WISCONSIN
NORTHERN ASPEN-BIRCH UNIT			
SOFTWOODS:			
BALSAM FIR	1609	1609	0
CEDAR	3338	3338	0
JACK PINE	2609	2609	0
RED PINE	4147	4147	0
WHITE PINE	7750	7406	344
SPRUCE	3915	3915	0
TAMARACK	2	2	0
TOTAL SOFTWOODS	23370	23026	344
HARDWOODS:			
ASH	575	575	0
ASPEN	13769	13769	0
BALSAM POPLAR	2085	2085	0
BASSWOOD	52	52	0
PAPER BIRCH	1265	1265	0
YELLOW BIRCH	45	45	0
ELM	816	816	0
SOFT MAPLE	100	100	0
RED OAK	30	30	0
TOTAL HARDWOODS	18737	18737	0
ALL SPECIES	42107	41763	344
NORTHERN PINE UNIT			
SOFTWOODS:			
BALSAM FIR	2589	2589	—
CEDAR	1085	1085	—
JACK PINE	10355	10355	—
RED PINE	7991	7991	—
WHITE PINE	6607	6607	—
SPRUCE	711	711	—
TAMARACK	176	176	—
TOTAL SOFTWOODS	29514	29514	—
HARDWOODS:			
ASH	3677	3677	—
ASPEN	43285	43285	—
BALSAM POPLAR	248	248	—
BASSWOOD	3111	3111	—
PAPER BIRCH	2178	2178	—
ELM	5244	5244	—
HICKORY	25	25	—
HARD MAPLE	245	245	—
SOFT MAPLE	106	106	—
RED OAK	2986	2986	—
WHITE OAK	1729	1729	—
OTHER SPECIES	300	300	—
TOTAL HARDWOODS	63134	63134	—
ALL SPECIES	92648	92648	—

(Table 17 continued on next page)

(Table 17 continued)

SPECIES	ALL STATES	MINNESOTA	IOWA	WISCONSIN
CENTRAL HARDWOODS UNIT				
SOFTWOODS:				
CEDAR	5	5	0	0
RED PINE	117	117	0	0
WHITE PINE	191	191	0	0
SPRUCE	60	60	0	0
TAMARACK	20	20	0	0
TOTAL SOFTWOODS	393	393	0	0
HARDWOODS:				
ASH	1816	1816	0	0
ASPEN	3415	3409	0	6
BASSWOOD	3462	3379	81	2
PAPER BIRCH	443	443	0	0
YELLOW BIRCH	4	4	0	0
COTTONWOOD	1786	1773	11	2
ELM	5568	5360	208	0
HICKORY	92	92	0	0
HARD MAPLE	1253	1173	80	0
SOFT MAPLE	1011	1011	0	0
RED OAK	10362	9466	876	20
WHITE OAK	3353	3120	233	0
WALNUT	379	317	62	0
OTHER SPECIES	144	144	0	0
TOTAL HARDWOODS	33088	31507	1551	30
ALL SPECIES	33481	31900	1551	30
PRAIRIE UNIT				
HARDWOODS:				
ASH	194	194	—	—
ASPEN	20	20	—	—
BASSWOOD	182	182	—	—
COTTONWOOD	1906	1906	—	—
ELM	1270	1270	—	—
HARD MAPLE	3	3	—	—
SOFT MAPLE	168	168	—	—
RED OAK	83	83	—	—
WHITE OAK	115	115	—	—
TOTAL HARDWOODS	3941	3941	—	—
ALL SPECIES	3941	3941	—	—
ALL UNITS				
SOFTWOODS:				
BALSAM FIR	4198	4198	0	0
CEDAR	4428	4428	0	0
JACK PINE	12964	12964	0	0
RED PINE	12255	12255	0	0
WHITE PINE	14548	14204	0	344
SPRUCE	4686	4686	0	0
TAMARACK	198	198	0	0
TOTAL SOFTWOODS	53277	52933	0	344
HARDWOODS:				
ASH	6262	6262	0	0
ASPEN	60489	60483	0	6
BALSAM POPLAR	2333	2333	0	0
BASSWOOD	6807	6724	81	2
PAPER BIRCH	3886	3886	0	0
YELLOW BIRCH	49	49	0	0
COTTONWOOD	3692	3679	11	2
ELM	12898	12690	208	0
HICKORY	117	117	0	0
HARD MAPLE	1501	1421	80	0
SOFT MAPLE	1385	1385	0	0
RED OAK	13461	12565	876	20
WHITE OAK	5197	4964	233	0
WALNUT	379	317	62	0
OTHER SPECIES	444	444	0	0
TOTAL HARDWOODS	118900	117319	1551	30
ALL SPECIES	172177	170252	1551	374

Table 18.—*Lumber production by unit and county for softwoods and hardwoods, Minnesota, 1973*

(In thousand board feet)

UNIT AND COUNTY	SOFTWOODS	HARDWOODS	ALL SPECIES
CARLTON	63	143	206
COOK	5335	2494	7829
KOOCHICHING	5311	4533	9844
LAKE	5018	1145	6163
ST.LOUIS	8102	10250	18352
NORTHERN ASPEN-BIRCH	23829	18565	42394
AITKIN	1089	7438	8527
BECKER	1172	1120	2292
BELTRAMI	4414	3330	7744
CASS	1870	1490	3360
CLEARWATER	2745	7765	10510
CROW WING	717	402	1119
HUBBARD	1792	711	2503
ITASCA	10935	33431	44366
LAKE OF THE WOODS	802	90	892
MAHNOMEN	170	2540	2710
ROSEAU	3070	155	3225
WADENA	600	3225	3825
NORTHERN PINE	29376	61697	91073
ANOKA	5	345	350
DOUGLAS	0	250	250
FILLMORE	0	4305	4305
GOODHUE	60	1940	2000
HOUSTON	0	4172	4172
ISANTI	0	400	400
KANABEC	0	2000	2000
LE SUEUR	0	2500	2500
MILLE LACS	14	6698	6712
MORRISON	130	375	505
OTTER TAIL	66	655	721
PINE	0	3400	3400
RICE	5	195	200
SCOTT	0	500	500
STEARNS	0	692	692
WABASHA	0	1005	1005
WINONA	0	132	132
WRIGHT	0	100	100
CENTRAL HARDWOODS	280	29664	29944
BLUE EARTH	0	21	21
BROWN	0	80	80
FARIBAULT	0	413	413
KANDIYOHI	0	2	2
MCLEOD	0	3235	3235
MEEKER	0	70	70
REDWOOD	0	100	100
STEVENS	0	20	20
PRAIRIE	0	3941	3941
STATE TOTAL	53485	113867	167352

Table 19.— *Veneer log production and receipts in Minnesota for selected years, 1946-1973*
(In thousand board feet, International 1/4-inch rule)

Year	Production	Receipts
1946	7,995	1,402
1948	7,102	2,296
1950	6,367	1,331
1952	8,051	1,864
1954	10,389	2,214
1956	8,961	1,563
1958	9,031	1,838
1960	10,093	1,062
1962	9,177	2,233
1963	9,970	3,180
1965	7,567	1,077
1966	6,078	511
1968	5,167	482
1970	3,498	390
1972	4,232	482
1973	5,076	495

Table 20.— *Veneer log production and receipts by species in Minnesota, 1960 and 1973*
(In thousand board feet, International 1/4-inch rule)

	Production			Receipts		
Species	1960	1973	Change	1960	1973	Change
Ash	233	10	−223	30	—	−30
Aspen	568	460	−108	2	67	65
Basswood	2,006	673	−1,333	334	171	−163
Paper birch	1,082	271	−811	229	—	−229
Yellow birch	889	18	−871	26	—	−26
Cottonwood	1,278	1,045	−233	292	36	−256
Elm	1,487	315	−1,172	116	—	−116
Hard maple	611	471	−140	1	5	4
Soft maple	578	142	−445	32	190	158
Red oak	1,186	1,521	335	—	26	26
White oak	—	15	15	—	—	—
Walnut	77	56	−21	—	—	—
Other hardwoods	89	79	−10	—	—	—
All species	10,093	5,076	−5,017	1,062	495	−567

Table 21.–Veneer log production by species and State of destination, Minnesota, 1973
(In thousand board feet, International ¼-inch rule)

SPECIES	DESTINATION							
	MINNESOTA	WISCONSIN	MICHIGAN	INDIANA	MISSOURI	IOWA	OTHER STATES	TOTAL
SOFTWOODS:								
BALSAM FIR	0	0	0	0	0	0	0	0
CEDAR	0	0	0	0	0	0	0	0
JACK PINE	0	0	0	0	0	0	0	0
RED PINE	0	0	0	0	0	0	0	0
WHITE PINE	0	0	0	0	0	0	0	0
SPRUCE	0	0	0	0	0	0	0	0
TAMARACK	0	0	0	0	0	0	0	0
TOTAL SWDS	0	0	0	0	0	0	0	0
HARDWOODS:								
ASH	0	10	0	0	0	0	0	10
ASPEN	67	10	383	0	0	0	0	460
BALSAM POP	0	0	0	0	0	0	0	0
BASSWOOD	171	502	0	0	0	0	0	673
PAP. BIRCH	0	202	69	0	0	0	0	271
YEL. BIRCH	0	2	16	0	0	0	0	18
COTTONWOOD	36	1009	0	0	0	0	0	1045
ELM	0	315	0	0	0	0	0	315
HICKORY	0	0	0	0	0	0	0	0
HARD MAPLE	5	466	0	0	0	0	0	471
SOFT MAPLE	61	81	0	0	0	0	0	142
RED OAK	26	1470	0	25	0	0	0	1521
WHITE OAK	0	9	0	6	0	0	0	15
WALNUT	0	0	0	0	56	0	0	56
OTHER SPP.	0	0	0	79	0	0	0	79
TOTAL HWDS	366	4076	468	110	56	0	0	5076
ALL SPECIES	366	4076	468	110	56	0	0	5076

Table 22.—*Veneer log production by unit, county and species, Minnesota, 1973*
(In thousand board feet, International ¼-inch rule)

UNIT AND COUNTY	BALSAM FIR	CEDAR	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMARACK	ASH	ASPEN	BALSAM POPLAR	BASSWOOD	PAPER BIRCH	YELLOW BIRCH	COTTONWOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	WALNUT	OTHER HARDWOODS	ALL SPECIES
NORTHERN ASPEN-BIRCH																							
CARLTON	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	5
COOK	0	0	0	0	0	0	0	0	0	0	0	29	2	0	0	0	0	0	0	0	0	0	31
KOOCHICHING	0	0	0	0	0	0	0	0	0	0	0	120	0	0	0	0	0	0	0	0	0	0	120
LAKE	0	0	0	0	0	0	0	0	383	0	0	16	16	0	0	0	0	0	0	0	0	0	415
ST. LOUIS	0	0	0	0	0	0	0	0	0	0	29	30	0	0	0	0	0	9	0	0	0	0	68
UNIT TOTAL	0	0	0	0	0	0	0	0	383	0	29	197	18	0	0	0	0	12	0	0	0	0	639
NORTHERN PINE																							
AITKIN	0	0	0	0	0	0	0	0	5	0	56	6	0	0	6	0	0	12	0	0	0	0	79
BECKER	0	0	0	0	0	0	0	0	0	0	59	0	0	0	0	0	0	0	32	0	0	0	91
BELTRAMI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CASS	0	0	0	0	0	0	0	0	0	0	4	8	0	0	0	0	0	2	0	0	0	0	14
CLEARWATER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CROW WING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HUBBARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ITASCA	0	0	0	0	0	0	0	0	0	0	5	28	0	0	0	0	0	2	0	0	0	0	35
LAKE-WOODS	0	0	0	0	0	0	0	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0	32
MAHNOMEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROSEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WALENA	0	0	0	0	0	0	0	0	10	0	4	0	0	0	0	0	0	0	3	0	0	0	17
UNIT TOTAL	0	0	0	0	0	0	0	0	15	0	128	74	0	0	0	0	0	16	35	0	0	0	268
CENTRAL HARDWOODS																							
ANOKA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BENTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CARVER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHISAGO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAKOTA	0	0	0	0	0	0	0	1	0	0	4	0	0	0	6	0	14	21	23	2	0	0	71
DOUGLAS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FILLMORE	0	0	0	0	0	0	0	0	0	0	306	0	0	8	0	0	30	0	325	0	4	0	673
GOODHUE	0	0	0	0	0	0	0	0	0	0	7	0	0	180	64	0	258	14	17	2	0	0	542
HENNEPIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUSTON	0	0	0	0	0	0	0	0	0	0	0	0	0	109	0	0	31	5	765	0	31	79	1020
ISANTI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KANABEC	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	5	0	0	0	57
LE SUEUR	0	0	0	0	0	0	0	2	0	0	8	0	0	78	35	0	12	29	17	1	0	0	182
MILLE LACS	0	0	0	0	0	0	0	0	62	0	41	0	0	36	0	0	5	0	21	0	0	0	165
MORRISON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OLMSTEAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11
OTTER TAIL	0	0	0	0	0	0	0	0	0	0	39	0	0	0	0	0	0	0	15	0	0	0	54
PINE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RICE	0	0	0	0	0	0	0	1	0	0	5	0	0	8	7	0	27	14	14	1	0	0	77
SCOTT	0	0	0	0	0	0	0	1	0	0	5	0	0	0	7	0	3	6	14	1	0	0	37
SHERBURNE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STEARNS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TODD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WABASHA	0	0	0	0	0	0	0	0	0	0	0	0	0	245	81	0	0	0	134	0	5	0	465
WINONA	0	0	0	0	0	0	0	0	0	0	0	0	0	179	34	0	0	0	107	6	0	0	326
WRIGHT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	0	0	0	0	0	51
UNIT TOTAL	0	0	0	0	0	0	0	5	62	0	467	0	0	843	234	0	431	89	1457	13	51	79	3731
PRAIRIE																							
BLUE EARTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5
BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHIPPEWA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FARIBAULT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KANDIYOHI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MCLEOD	0	0	0	0	0	0	0	1	0	0	5	0	0	0	7	0	3	7	14	1	0	0	38
MARSHALL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MEEKER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NICOLLET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORMAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENNINGTON	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
POLK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REDWOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	39	13	0	0	0	0	0	0	0	52
RENVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0	40	13	0	0	0	0	0	0	0	53
SIBLEY	0	0	0	0	0	0	0	4	0	0	40	0	0	118	48	0	12	8	15	1	0	0	246
STEELE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	25
STEVENS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SWIFT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASECA	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	10	0	0	0	0	15
UNIT TOTAL	0	0	0	0	0	0	0	5	0	0	49	0	0	202	81	0	40	25	29	2	5	0	438
STATE TOTAL	0	0	0	0	0	0	0	10	460	0	673	271	18	1045	315	0	471	142	1521	15	56	79	5076

Table 23.— *Pole production by unit, county, and species, Minnesota, 1973*
(In number of pieces)

Unit and county	Cedar	Jack pine	Red pine	Tamarack
Northern Aspen-Birch				
Koochiching	—	284	563	—
Lake	—	4,400	3,660	—
St. Louis	—	11,295	12,273	—
Unit total	—	15,979	16,496	—
Northern pine				
Beltrami	—	8,176	9,850	—
Cass	—	51,471	15,424	—
Clearwater	—	4,691	1,349	—
Crow Wing	—	1,831	789	—
Hubbard	—	7,651	3,970	—
Itasca	200	1,659	1,845	—
Lake of the Woods	750	—	—	300
Roseau	—	—	—	750
Unit total	950	75,497	33,227	1,050
All units	950	91,458	49,723	1,050

Table 24.— *Commercial post production by unit, county, and species, Minnesota, 1973*
(In thousand pieces)

Unit and county	Cedar	Jack pine	Red pine	White pine	Spruce	Tamarack
Northern Aspen-Birch						
Koochiching	74	—	—	—	—	—
St. Louis	4	103	3	—	—	—
Unit total	78	103	3	—	—	—
Northern pine						
Aitkin	—	—	—	—	—	1
Beltrami	13	471	42	10	5	20
Cass	1	200	41	—	—	—
Clearwater	—	14	3	—	—	—
Crow Wing	—	5	1	—	—	—
Hubbard	—	137	3	—	—	—
Itasca	19	3	4	—	—	—
Lake of the Woods	48	—	—	—	—	—
Roseau	—	—	—	—	—	2
Unit total	81	830	94	10	5	23
All units	159	933	97	10	5	23

Table 25.— *Miscellaneous product[1] output by unit, county, and species, Minnesota, 1973*
(In thousand cubic feet)

Unit and county	Balsam fir	Jack pine	Red pine	Ash	Aspen	Balsam poplar	Bass-wood	Paper birch	Elm	Red oak	White oak
NORTHERN ASPEN-BIRCH UNIT											
Carlton	—	—	—	—	41	—	—	8	—	—	—
Koochiching	—	—	1	—	71	—	—	8	—	—	—
Lake	16	—	—	—	98	—	—	649	—	—	—
St. Louis	79	2	13	—	1,419	—	—	121	—	—	—
Unit total	95	2	14	—	1,629	—	—	786	—	—	—
NORTHERN PINE UNIT											
Aitkin	—	—	—	—	191	—	—	12	—	—	—
Beltrami	—	1	2	—	—	—	—	—	—	—	—
Cass	—	43	67	—	119	—	—	—	—	—	—
Clearwater	—	4	7	—	—	—	—	—	—	—	—
Crow Wing	—	1	2	—	—	—	—	—	—	—	—
Hubbard	—	1	4	—	—	—	—	—	—	—	—
Itasca	20	1	6	—	1,670	—	—	78	—	—	—
Lake of the Woods	—	40	—	—	197	—	—	—	—	—	—
Mahnomen	—	—	—	—	—	—	22	—	—	24	—
Wadena	—	—	41	—	235	61	—	—	—	—	—
Unit total	20	91	129	—	2,412	61	22	90	—	24	—
CENTRAL HARDWOOD UNIT											
Douglas	—	—	—	1	2	—	—	—	2	2	—
Fillmore	—	—	—	—	—	—	—	—	—	—	7
Houston	—	—	—	—	—	—	—	—	—	—	13
Isanti	—	—	—	—	—	—	—	—	—	3	—
Kanabec	—	—	—	—	—	—	—	—	—	2	—
Otter Tail	—	—	—	13	355	61	160	8	12	20	—
Pine	—	—	—	—	12	—	—	—	—	—	—
Todd	—	—	—	1	317	82	2	—	2	2	—
Winona	—	—	—	—	—	—	—	—	—	—	10
Unit total	—	—	—	15	686	143	162	8	16	29	30
All Units	115	93	143	15	4,727	204	184	884	16	53	30

[1] Particleboard bolts, piling, shaving bolts, charcoal wood, lath bolts, match bolts, cooperage bolts, and specialty bolts for dowels and nursery flats.

Table 26.—*Residue produced at Minnesota primary wood-using mills by kind of material, type of use, unit, and county, 1973*

(In thousand tons, green weight)

NORTHERN ASPEN-BIRCH UNIT

COUNTY OR UNIT AND TYPE OF USE	WOOD RESIDUE						BARK	
	TOTAL		COARSE 1/		FINE 2/			
	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD
CARLTON								
INDUSTRIAL FUEL	0	0	0	0	0	0	0	4.15
DOMESTIC FUEL	.06	.19	.06	.19	0	0	.02	.08
MISCELLANEOUS 3/	.03	.11	0	0	.03	.11	0	0
NOT USED	.05	0	.03	0	.02	0	.01	0
TOTAL	.14	.30	.09	.19	.05	.11	.03	4.23
COOK								
FIBER PRODUCTS	5.07	1.84	5.07	1.84	0	0	0	0
INDUSTRIAL FUEL	.89	.75	0	0	.89	.75	.43	.16
DOMESTIC FUEL	.02	.25	.02	.25	0	0	0	.01
NOT USED	5.37	2.43	2.07	1.25	3.30	1.18	2.38	1.24
TOTAL	11.35	5.27	7.16	3.34	4.19	1.93	2.81	1.41
KOOCHICHING								
FIBER PRODUCTS	4.58	3.88	3.02	3.68	1.56	.20	0	0
DOMESTIC FUEL	.12	.10	.12	.10	0	0	.04	.04
MISCELLANEOUS 3/	3.25	0	3.25	0	0	0	0	0
NOT USED	3.33	5.64	.73	2.30	2.60	3.34	2.07	2.54
TOTAL	11.28	9.62	7.12	6.08	4.16	3.54	2.11	2.58
LAKE								
FIBER PRODUCTS	6.40	.80	6.40	.80	0	0	0	0
DOMESTIC FUEL	.16	.09	.16	.09	0	0	.04	.05
MISCELLANEOUS 3/	.98	.13	0	0	.98	.13	0	0
NOT USED	3.10	1.41	.17	.64	2.93	.77	2.78	.62
TOTAL	10.64	2.43	6.73	1.53	3.91	.90	2.82	.67
ST.LOUIS								
FIBER PRODUCTS	4.98	2.40	4.98	2.40	0	0	0	0
INDUSTRIAL FUEL	0	.18	0	0	0	.18	.24	1.72
DOMESTIC FUEL	1.61	.25	1.60	.25	.01	0	.62	.09
MISCELLANEOUS 3/	.36	.21	.20	.13	.16	.08	.05	.06
NOT USED	10.24	18.70	4.08	10.97	6.16	7.73	3.64	6.56
TOTAL	17.19	21.74	10.86	13.75	6.33	7.99	4.55	8.43
ALL COUNTIES NORTHERN ASPEN-BIRCH								
FIBER PRODUCTS	21.03	8.92	19.47	8.72	1.56	.20	0	0
INDUSTRIAL FUEL	.89	.93	0	0	.89	.93	.67	6.03
DOMESTIC FUEL	1.97	.88	1.96	.88	.01	0	.72	.27
MISCELLANEOUS 3/	4.62	.45	3.45	.13	1.17	.32	.05	.06
NOT USED	22.09	28.18	7.08	15.16	15.01	13.02	10.88	10.96
TOTAL	50.60	39.36	31.96	24.89	18.64	14.47	12.32	17.32

(TABLE 26 CONTINUED ON NEXT PAGE)

(TABLE 26 CONTINUED)

NORTHERN PINE UNIT

COUNTY OR UNIT AND TYPE OF USE	WOOD RESIDUE						BARK	
	TOTAL		COARSE 1/		FINE 2/			
	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD
AITKIN								
FIBER PRODUCTS	.88	3.52	.88	3.52	0	0	0	0
CHARCOAL	0	1.23	0	1.23	0	0	0	.52
DOMESTIC FUEL	.44	3.34	.44	3.34	0	0	.18	1.25
MISCELLANEOUS 3/	.02	.13	0	0	.02	.13	0	0
NOT USED	.96	7.09	.14	1.39	.82	5.70	.45	2.48
TOTAL	2.30	15.31	1.46	9.48	.84	5.83	.63	4.25
BECKER								
DOMESTIC FUEL	.53	1.42	.53	1.37	0	.05	.16	.11
MISCELLANEOUS 3/	.42	.11	0	0	.42	.11	0	0
NOT USED	1.55	.84	1.04	.12	.51	.72	.47	.54
TOTAL	2.50	2.37	1.57	1.49	.93	.88	.63	.65
BELTRAMI								
FIBER PRODUCTS	4.11	1.90	4.11	1.90	0	0	0	0
INDUSTRIAL FUEL	.32	1.90	.32	1.90	0	0	.09	.21
DOMESTIC FUEL	.37	.63	.37	.58	0	.05	.13	.21
MISCELLANEOUS 3/	.17	.33	0	0	.17	.33	.01	0
NOT USED	4.40	2.31	1.11	.08	3.29	2.23	2.43	1.49
TOTAL	9.37	7.07	5.91	4.46	3.46	2.61	2.66	1.91
CASS								
INDUSTRIAL FUEL	.04	.09	.04	.09	0	0	1.61	.04
DOMESTIC FUEL	.13	.05	.13	.05	0	0	.67	.02
MISCELLANEOUS 3/	.40	0	.40	0	0	0	.17	0
NOT USED	3.38	3.00	1.93	1.85	1.45	1.15	3.01	.79
TOTAL	3.95	3.14	2.50	1.99	1.45	1.15	5.46	.85
CLEARWATER								
FIBER PRODUCTS	2.70	5.61	2.70	5.61	0	0	0	0
DOMESTIC FUEL	.05	.07	.05	.07	0	0	.02	.03
MISCELLANEOUS 3/	.03	.04	0	0	.03	.04	0	0
NOT USED	3.04	10.74	.93	4.72	2.11	6.02	1.54	4.39
TOTAL	5.82	16.46	3.68	10.40	2.14	6.06	1.56	4.42
CROW WING								
DOMESTIC FUEL	.30	.09	.30	.09	0	0	.12	.03
MISCELLANEOUS 3/	.01	0	0	0	.01	0	0	0
NOT USED	1.22	.77	.66	.45	.56	.32	.28	.19
TOTAL	1.53	.86	.96	.54	.57	.32	.40	.22
HUBBARD								
DOMESTIC FUEL	.55	.09	.55	.09	0	0	.24	.05
MISCELLANEOUS 3/	.19	.03	.01	.01	.18	.02	0	0
NOT USED	3.02	1.37	1.81	.84	1.21	.53	1.02	.36
TOTAL	3.76	1.49	2.37	.94	1.39	.55	1.26	.41
ITASCA								
FIBER PRODUCTS	10.93	40.29	10.93	36.29	0	4.00	0	.17
DOMESTIC FUEL	.78	2.36	.78	2.36	0	0	.32	1.02
MISCELLANEOUS 3/	3.07	2.89	.41	.79	2.66	2.10	0	0
NOT USED	8.41	27.97	2.55	8.01	5.86	19.96	5.48	17.89
TOTAL	23.19	73.51	14.67	47.45	8.52	26.06	5.80	19.08
LAKE OF THE WOODS								
DOMESTIC FUEL	.15	.06	.15	.06	0	0	.04	.03
MISCELLANEOUS 3/	.03	0	0	0	.03	0	0	0
NOT USED	1.51	.13	.92	.06	.59	.07	.39	.03
TOTAL	1.69	.19	1.07	.12	.62	.07	.43	.06
MAHNOMEN								
DOMESTIC FUEL	.03	.41	.03	.41	0	0	.01	.12
MISCELLANEOUS 3/	0	.01	0	0	0	.01	0	0
NOT USED	.32	5.59	.20	3.12	.12	2.47	.09	1.51
TOTAL	.35	6.01	.23	3.53	.12	2.48	.10	1.63
ROSEAU								
FIBER PRODUCTS	.05	.03	.05	.03	0	0	0	0
DOMESTIC FUEL	1.71	0	1.26	0	.45	0	.51	0
MISCELLANEOUS 3/	.31	0	0	0	.31	0	.23	0
NOT USED	4.48	.31	2.82	.19	1.66	.12	1.09	.09
TOTAL	6.55	.34	4.13	.22	2.42	.12	1.83	.09
WADENA								
DOMESTIC FUEL	.20	.40	.20	.40	0	0	.09	.17
MISCELLANEOUS 3/	.06	0	0	0	.06	0	0	0
NOT USED	1.06	6.56	.62	3.99	.44	2.57	.27	1.69
TOTAL	1.32	6.96	.82	4.39	.50	2.57	.36	1.86

(TABLE 26 CONTINUED ON NEXT PAGE)

(TABLE 26 CONTINUED)

NORTHERN PINE UNIT (continued)

COUNTY OR UNIT AND TYPE OF USE	WOOD RESIDUE						BARK	
	TOTAL		COARSE 1/		FINE 2/			
	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD
ALL COUNTIES NORTHERN PINE								
FIBER PRODUCTS	18.67	51.35	18.67	47.35	0	4.00	0	.17
CHARCOAL	0	1.23	0	1.23	0	0	0	.52
INDUSTRIAL FUEL	.36	1.99	.36	1.99	0	0	1.70	.25
DOMESTIC FUEL	5.24	8.92	4.79	8.82	.45	.10	2.49	3.04
MISCELLANEOUS 3/	4.71	3.54	.82	.80	3.89	2.74	.41	0
NOT USED	33.35	66.68	14.73	24.82	18.62	41.86	16.52	31.45
TOTAL	62.33	133.71	39.37	85.01	22.96	48.70	21.12	35.43
CENTRAL HARDWOODS UNIT								
ANOKA								
DOMESTIC FUEL	.01	.73	.01	.46	0	.27	0	.20
TOTAL	.01	.73	.01	.46	0	.27	0	.20
DOUGLAS								
DOMESTIC FUEL	0	.25	0	.25	0	0	0	.07
MISCELLANEOUS 3/	0	.08	0	.04	0	.04	0	0
NOT USED	0	.22	0	.06	0	.16	0	.08
TOTAL	0	.55	0	.35	0	.20	0	.15
FILLMORE								
FIBER PRODUCTS	0	5.30	0	5.30	0	0	0	0
DOMESTIC FUEL	0	.39	0	.39	0	0	0	.03
MISCELLANEOUS 3/	0	.57	0	0	0	.57	0	.19
NOT USED	0	2.84	0	.06	0	2.78	0	2.23
TOTAL	0	9.10	0	5.75	0	3.35	0	2.45
GOODHUE								
CHARCOAL	0	1.56	0	1.56	0	0	0	.66
DOMESTIC FUEL	0	.26	0	.26	0	0	0	.11
MISCELLANEOUS 3/	0	1.50	0	0	0	1.50	0	0
NOT USED	.13	.80	.08	.78	.05	.02	.02	.33
TOTAL	.13	4.12	.08	2.60	.05	1.52	.02	1.10
HOUSTON								
FIBER PRODUCTS	0	5.27	0	5.27	0	0	0	0
DOMESTIC FUEL	0	3.05	0	.98	0	2.07	0	.35
MISCELLANEOUS 3/	0	1.72	0	0	0	1.72	0	.17
NOT USED	0	1.85	0	.60	0	1.25	0	2.58
TOTAL	0	11.89	0	6.85	0	5.04	0	3.10
ISANTI								
NOT USED	0	.85	0	.54	0	.31	0	.23
TOTAL	0	.85	0	.54	0	.31	0	.23
KANABEC								
CHARCOAL	0	2.68	0	2.68	0	0	0	1.14
DOMESTIC FUEL	0	1.56	0	0	0	1.56	0	0
TOTAL	0	4.24	0	2.68	0	1.56	0	1.14
LE SUEUR								
DOMESTIC FUEL	0	2.81	0	2.81	0	0	0	.34
MISCELLANEOUS 3/	0	1.72	0	0	0	1.72	0	.17
NOT USED	0	.77	0	.54	0	.23	0	.91
TOTAL	0	5.30	0	3.35	0	1.95	0	1.42
MILLE LACS								
FIBER PRODUCTS	.15	9.31	.15	9.31	0	0	0	0
INDUSTRIAL FUEL	0	.06	0	.06	0	0	0	.05
DOMESTIC FUEL	.01	.22	.01	.21	0	.01	0	.15
MISCELLANEOUS 3/	.07	4.06	0	0	.07	4.06	0	0
NOT USED	.02	1.76	0	0	.02	1.76	.06	3.96
TOTAL	.25	15.41	.16	9.58	.09	5.83	.06	4.16
MORRISON								
DOMESTIC FUEL	0	.04	0	.04	0	0	0	.01
MISCELLANEOUS 3/	0	0	0	0	0	0	0	0
NOT USED	.27	.76	.16	.47	.11	.29	.08	.20
TOTAL	.27	.80	.16	.51	.11	.29	.08	.21
OTTER TAIL								
DOMESTIC FUEL	.02	.24	.02	.24	0	0	.01	.10
MISCELLANEOUS 3/	.01	.27	.01	.03	0	.24	0	.01
NOT USED	.11	.86	.06	.60	.05	.26	.03	.82
TOTAL	.14	1.37	.09	.87	.05	.50	.04	.93
PINE								
FIBER PRODUCTS	0	4.56	0	4.56	0	0	0	0
NOT USED	0	2.65	0	0	0	2.65	0	1.94
TOTAL	0	7.21	0	4.56	0	2.65	0	1.94

(TABLE 26 CONTINUED ON NEXT PAGE)

(TABLE 26 CONTINUED)

CENTRAL HARDWOODS UNIT (continued)

COUNTY OR UNIT AND TYPE OF USE	WOOD RESIDUE							
	TOTAL		COARSE 1/		FINE 2/		BARK	
	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD
RICE								
DOMESTIC FUEL	0	.07	0	.07	0	0	0	.03
MISCELLANEOUS 3/	0	0	0	0	0	0	0	0
NOT USED	.01	.20	.01	.20	0	0	0	.08
TOTAL	.01	.27	.01	.27	0	0	0	.11
SCOTT								
DOMESTIC FUEL	0	.67	0	.67	0	0	0	.29
MISCELLANEOUS 3/	0	.39	0	0	0	.39	0	0
TOTAL	0	1.06	0	.67	0	.39	0	.29
STEARNS								
DOMESTIC FUEL	0	1.07	0	.93	0	.14	0	.10
MISCELLANEOUS 3/	0	.40	0	0	0	.40	0	0
NOT USED	0	0	0	0	0	0	0	.29
TOTAL	0	1.47	0	.93	0	.54	0	.39
WABASHA								
FIBER PRODUCTS	0	1.21	0	1.21	0	0	0	0
DOMESTIC FUEL	0	.14	0	.14	0	0	0	0
MISCELLANEOUS 3/	0	.62	0	0	0	.62	0	.17
NOT USED	0	.16	0	0	0	.16	0	.40
TOTAL	0	2.13	0	1.35	0	.78	0	.57
WINONA								
FIBER PRODUCTS	0	3.34	0	3.34	0	0	0	0
DOMESTIC FUEL	0	.18	0	.18	0	0	0	0
MISCELLANEOUS 3/	0	.19	0	0	0	.19	0	0
NOT USED	0	1.85	0	0	0	1.85	0	1.49
TOTAL	0	5.56	0	3.52	0	2.04	0	1.49
WRIGHT								
INDUSTRIAL FUEL	0	.07	0	.02	0	.05	0	.01
DOMESTIC FUEL	0	.21	0	.19	0	.02	0	.05
MISCELLANEOUS 3/	0	.10	0	0	0	.10	0	0
NOT USED	0	.05	0	0	0	.05	0	.06
TOTAL	0	.43	0	.21	0	.22	0	.12
ALL COUNTIES CENTRAL HARDWOODS								
FIBER PRODUCTS	.15	28.99	.15	28.99	0	0	0	0
CHARCOAL	0	4.24	0	4.24	0	0	0	1.80
INDUSTRIAL FUEL	0	.13	0	.08	0	.05	0	.06
DOMESTIC FUEL	.04	11.89	.04	7.82	0	4.07	.01	1.83
MISCELLANEOUS 3/	.08	11.62	.01	.07	.07	11.55	0	.71
NOT USED	.54	15.62	.31	3.85	.23	11.77	.19	15.60
TOTAL	.81	72.49	.51	45.05	.30	27.44	.20	20.00

(TABLE 26 CONTINUED ON NEXT PAGE)

(TABLE 26 CONTINUED)

PRAIRIE UNIT

COUNTY OR UNIT AND TYPE OF USE	WOOD RESIDUE							
	TOTAL		COARSE 1/		FINE 2/		BARK	
	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD	SOFTWOOD	HARDWOOD
BLUE EARTH								
MISCELLANEOUS 3/	0	.01	0	0	0	.01	0	0
NOT USED	0	.04	0	.03	0	.01	0	.01
TOTAL	0	.05	0	.03	0	.02	0	.01
BROWN								
DOMESTIC FUEL	0	.11	0	.11	0	0	0	.05
MISCELLANEOUS 3/	0	.06	0	0	0	.06	0	0
TOTAL	0	.17	0	.11	0	.06	0	.05
FARIBAULT								
DOMESTIC FUEL	0	.71	0	.55	0	.16	0	.24
NOT USED	0	.16	0	0	0	.16	0	0
TOTAL	0	.87	0	.55	0	.32	0	.24
KANDIYOHI								
NOT USED	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0
MCLEOD								
DOMESTIC FUEL	0	3.53	0	3.53	0	0	0	1.51
MISCELLANEOUS 3/	0	1.33	0	0	0	1.33	0	0
NOT USED	0	1.99	0	.80	0	1.19	0	.34
TOTAL	0	6.85	0	4.33	0	2.52	0	1.85
MEEKER								
DOMESTIC FUEL	0	.05	0	.05	0	0	0	.02
MISCELLANEOUS 3/	0	.01	0	0	0	.01	0	0
NOT USED	0	.09	0	.05	0	.04	0	.02
TOTAL	0	.15	0	.10	0	.05	0	.04
REDWOOD								
DOMESTIC FUEL	0	.05	0	.05	0	0	0	.02
MISCELLANEOUS 3/	0	.01	0	0	0	.01	0	0
NOT USED	0	.15	0	.08	0	.07	0	.03
TOTAL	0	.21	0	.13	0	.08	0	.05
SIBLEY								
DOMESTIC FUEL	0	.01	0	.01	0	0	0	.02
MISCELLANEOUS 3/	0	.12	0	.04	0	.08	0	.02
TOTAL	0	.13	0	.05	0	.08	0	.04
STEVENS								
DOMESTIC FUEL	0	.01	0	.01	0	0	0	0
MISCELLANEOUS 3/	0	0	0	0	0	0	0	0
NOT USED	0	.03	0	.02	0	.01	0	.01
TOTAL	0	.04	0	.03	0	.01	0	.01
ALL COUNTIES PRAIRIE								
DOMESTIC FUEL	0	4.47	0	4.31	0	.16	0	1.86
MISCELLANEOUS 3/	0	1.54	0	.04	0	1.50	0	.02
NOT USED	0	2.46	0	.98	0	1.48	0	.41
TOTAL	0	8.47	0	5.33	0	3.14	0	2.29

ALL UNITS

TOTAL MINNESOTA								
FIBER PRODUCTS	39.85	89.26	38.29	85.06	1.56	4.20	0	.17
CHARCOAL	0	5.47	0	5.47	0	0	0	2.32
INDUSTRIAL FUEL	1.25	3.05	.36	2.07	.89	.98	2.37	6.34
DOMESTIC FUEL	7.25	26.16	6.79	21.83	.46	4.33	3.22	7.00
MISCELLANEOUS 3/	9.41	17.15	4.28	1.04	5.13	16.11	.46	.79
NOT USED	55.98	112.94	22.12	44.81	33.86	68.13	27.59	58.42
TOTAL	113.74	254.03	71.84	160.28	41.90	93.75	33.64	75.04

1/ SUITABLE FOR CHIPPING SUCH AS SLABS, EDGINGS, VENEER CORES, ETC.
2/ NOT SUITABLE FOR CHIPPING SUCH AS SAWDUST, VENEER CLIPPINGS, ETC.
3/ LIVESTOCK BEDDING, MULCH, SMALL DIMENSION, AND SPECIALTY ITEMS.

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Blyth, James E., Steven Wilhelm, and Jerold T. Hahn.
1979. Primary forest products industry and timber use, Minnesota, 1973. U.S. Dep. Agric. For. Serv., Resour. Bull. NC-39, 34 p. North Cent. For. Exp. Stn., St. Paul, Minnesota.

Discusses recent Minnesota forest industry trends; timber removals for industrial roundwood in 1973; production and receipts in 1973 of pulpwood, saw logs, and other industrial roundwood products. Shows trends in pulpwood and veneer log production and compares saw log production in 1960 and 1973. Discusses primary wood-using mill residue and its disposition.

OXFORD: 792:791(776). KEY WORDS: pulpwood, saw logs, production, trends, wood residue, timber removals.

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Sing along with Woodsy and help stop pollution.